The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 79, NO. 20 CHICAGO, ILLINOIS NOVEMBER 11, 1922

RENAL COLIC IN CASES OF RENAL AND URETERAL STONE *

HENRY H. MORTON, M.D.
Professor of Genito-Urinary Diseases, Long Island College Hospital
J. STURDIVANT READ, M.D.
JOHN H. BURKE, M.D.
AND
WILLIAM B. TATUM, M.D.
BROOKLYN

One of the most common, best known and most suggestive symptoms of renal or ureteral calculus is undoubtedly the sharp, lancinating pain which has been termed renal colic. With this particular sympton in mind, it is our purpose to review the cases of patients with renal and ureteral stone who have been admitted to and treated in the urologic department of the Long Island College Hospital during 1921, to determine, if possible, how far, if at all, temporary measures or procrastination on the part of physician or patient is justifiable after this symptom is encountered. That attacks of colic may be associated with conditions other than kidney or ureteral stone is, of course, a well established fact, and is mentioned only to convey the impression that colic is not in any way absolutely pathognomonic of stone. The ptosed kidney with its kinking ureter, plugs of pus from the suppurating parenchyma, clots from the bleeding neoplasms or masses of the tumor itself are frequently found to produce an attack of colic not unlike that which is seen in calculus, and can be differentiated from calculus colic only by a careful urologic examination.

In the study of our cases we have included only those in which examination and operation by one of us confirmed the diagnosis of renal or ureteral calculus. Many other patients, whose cases have not been included in this review, have been admitted with renal or ureteral calculus as the diagnosis, but the findings were either negative or insufficient to establish the diagnosis. Our records for the year yield thirty-two cases of stone—not a large number by any means, but a sufficient number, we believe, to form the basis for the study we have undertaken. Whether or not a larger series of cases would alter, or merely emphasize, our data is no doubt debatable, as a case or two resulting one way or another will change the relative findings in the small series more markedly than in the larger.

Of the thirty-two patients admitted for stone, thirty stated that they had come to the hospital for the relief of pain. Of the thirty, twenty-seven described their pain as paroxysmal in character, starting over one kidney and radiating along the course of the ureter or remaining localized in the kidney region. Of the others, one complained of dull pain in the lumbar region; one had abdominal pain, first diagnosed as an acute condition of the abdomen; another patient sought relief for backache, which had been diagnosed as due to spondylitis. Two of the patients who later proved to have calculi had had no pain or colic that they could recall, and were sent to the hospital for the relief of other symptoms, viz., pyuria.

From the foregoing data it will be readily seen that while it is possible for calculi to be present in the kidney without the production of pain, as illustrated by two of the cases encountered—the so-called "silent" stones—pain is the rule, and pain so constant and typical during the attack that it should leave little doubt in the mind of the attendant as to the nature of the attack.

It is of interest to note the time elapsing from the onset of the first attack of colic to the day the patient entered the hospital for relief, a point which to our minds represents (1) the time lost through the negligence of the physician who saw the patient in the first attack of colic, to advise him of the true condition and to urge him to have a urologic study of the kidneys and ureters made; (2) the time during which the patient knowing the existing condition has been able to withstand the attacks of pain, or (3) the time during which a stone in the kidney or ureter has succeeded in masquerading under the diagnosis of a recurrent appendicitis, cholelithiasis or backache of postural origin. The duration of colic in this series presented a wide variation; in one case there had been an attack three days before admission and none before, while two of the patients had had repeated attacks for twelve years, a remarkable example of the amount of agony some patients are willing or compelled to withstand before seeking relief. The remaining patients had had attacks extending over three or four years before admission; this was found to be a fair average of the duration of colic.

The fact that two of our patients had had previous appendectomies without relief of symptoms would seem to indicate that modern urologic methods of cystoscopy and pyelography had not been utilized. One had been operated on during the attack because of pain in the right lower quadrant accompanied by nausea and a slight rise of temperature—a supposedly acute appendicitis—a mistake which might well happen when the surgeon is called to see the patient in the home, and, without the facilities at hand for differentiating the two conditions, goes ahead with the operation on the supposition that he is dealing with a case of acute appen-

* From the Urological Department, Long Island College Hospital.

dicitis in which the appendix should be removed without delay. The second case, however, presents a rather different situation, as this patient had experienced several distinct attacks, and operation was performed in the interval without a urologic investigation. In this case there seems to be little excuse for the mistake in

Fig. 1 (Case 1).—Calculi in left kidney and ureter; the kidney is outlined in white.

diagnosis, for a roentgenogram of the ureter, made at any time, would have settled the question without further procedure.

Lest it be understood that a roentgen-ray examination of the suspected kidney and ureter will settle the diagnosis in every case of calculus, it might be well to mention that in one of our cases, although there had been attacks of colic a few days before the examination, the plates failed to show a shadow either in the kidney or the ureter, but another attack of colic while the patient was still in the hospital caused him to pass a stone larger than a pea. Cabot,[1] in a series of 127 cases, found a persistently negative roentgenogram in 6 per cent. of cases, while the series reported by Braasch and Moore [2] gave 11 per cent. of negatives. Although it will be seen that the roentgen ray is a fairly accurate means of diagnosing stone in the kidney or ureter, with from 6 to 11 per cent. of error, it is not without its limitations. Extra-ureteral or pelvic shadows may sometimes appear in the films, and are very likely to be considered as evidence of stone unless stereoscopic views with the opaque catheter in position, or pyelograms, are made. When these procedures are resorted to, and the films are interpreted by the experienced roentgenologist, the percentage of error should be very small.

That stone in the kidney or ureter, if left undiagnosed and untreated, does not resolve itself into years of repeated attacks of colic without the occurrence of other conditions is well illustrated by our experience in several cases, of which Case 1 is a type.

1. Cabot, Hugh: Errors in Diagnosis of Renal Calculus, Surg., Gynec. & Obst., **21**: 404, 1915.
2. Braasch, W. F., and Moore, A. B.: Stones in the Ureter, J. A. M. A. **65**: 1236 (Oct. 9) 1915.

Case 1.—M. H., a man, aged 37, married, a furrier, admitted, Sept. 26, 1920, complained of pain in the left lumbar region more or less for twelve years. The history was negative.

The present illness dated back to 1908, when he had his first attack of sharp, colicky pain in the left lumbar region. The patient had many similar attacks since then. Following an attack in 1916, he passed a small calculus. The last attack was six weeks before admission.

Physical examination was negative except for an area of tenderness over the region of the left kidney. The Murphy sign was positive. The kidney was palpable and slightly enlarged.

Analysis of a catheter specimen of bladder urine revealed slight turbidity, acid reaction, specific gravity of 1.018, a slight trace of albumin, absence of sugar, a few red cells, many pus cells, mucus and epithelium.

Cystoscopy revealed the bladder capacity as 175 c.c. A moderate degree of cystitis was present. The right ureteral orifice was normal, but the left was open and reddened. Ureteral catheters passed to the pelvis of each kidney without obstruction. Urine from the right kidney was clear, with no pus; the content was from 8 to 30 gm.; indigocarmin appeared in seven minutes. Urine from the left kidney was turbid and alkaline, with a trace of urea and many pus cells; no dye appeared in twenty-five minutes.

The pyelography report was: deficient filling of the kidney pelvis due to incomplete emptying of the pelvis before bromid solution was introduced; a large dilated pelvis with three flattened calices.

The roentgenogram revealed the right kidney normal in size and position, with no evidence of calculus in either the kidney or the ureter. There were several large and many small calculi in the left kidney and ureter.

The diagnosis was: multiple calculi, and pyonephrosis.

Left nephrectomy was performed (H. H. M.), Oct. 24, 1921. The kidney, exposed by the lumbar route, freed and partially delivered, was seen to be filled with calculi and badly destroyed. The pedicle was ligated and the kidney removed.

Fig. 2 (Case 1).—Large, dilated pelvis, with three flattened calices; the arrows point to a large stone in the lower calix.

The wound was closed with drainage. Convalescence was without event, and the patient left the hospital twenty-two days after operation.

The loss of a kidney, as in the foregoing case, is not the rule in the neglected case of renal calculus; nevertheless, it has occurred sufficiently often in our experience to impress on us the advisability of early diagnosis

and operative measures for the removal of stones. It is possible that the patient might have had the first of his many stones removed by pyelotomy or nephrotomy, only to have a later recurrence which would necessitate nephrectomy. However, when we consider that the percentage of recurrence following pyelotomy or

Fig. 3 (Case 2).—Large stone in lower portion of pelvis of right kidney, measuring 4 by 2 cm.; the catheter in the ureter is opaque.

nephrotomy, and this includes stones which were probably missed at operation, does not exceed 50 per cent., we believe that by operation performed early we can permanently cure at least half of the cases, and thus make the operation of nephrectomy for destruction of the kidney an uncommon procedure.

Whatever has been said in the preceding paragraph regarding nephrectomy in the instances in which we encounter a badly damaged kidney should not in any way be so construed as to leave the impression that nephrectomy should not be performed in suitable cases. At times one will be tempted to remove the stone from a kidney which has undergone a fair amount of destruction, with the hope that it may sufficiently recover to resume its function again. Under these circumstances the surgeon will do well to be guided by Mayo's [3] statement that "one of the most common causes of recurrence of stone has been the attempt to conserve a badly damaged kidney which was of little use functionally and a continuous menace to the patient."

The usual type of case encountered in our series was that of a small stone lying in the pelvis of the kidney, or in one of the calices, which had given symptoms for a varying length of time sufficient to cause the patient to seek relief, as in Case 2.

CASE 2.—M. H., a man, aged 43, single, a presser, admitted, April 16, 1921, complained of dull pain over the right kidney region, and frequent micturition. There had been no previous illnesses except gonorrhea twelve years previously. He stated that he had colic, severe pain in the right kidney region, six weeks before, and that the pain radiated to the right leg.

Physical examination was negative. Cystoscopy revealed subacute cystitis. The right ureteral orifice was injected, and easily catheterized. Urine from the right kidney was cloudy with pus; phenolsulphonephthalein appeared in fourteen minutes. The left ureter was normal, and urine from the left kidney was clear, with no pus; phenolsulphonephthalein appeared in six minutes.

Pyelography revealed a normal left kidney pelvis, and a large stone in the lower portion of the right kidney pelvis, measuring 4 by 2 cm.

The diagnosis was: calculus in the right kidney pelvis.

Right pyelotomy was performed (J. H. B.), April 20, 1921. The kidney was exposed by the lumbar route, delivered, and the calculus removed through the pelvis. The wound was closed with a drain to the pelvis. There was a small amount of urinary leakage for the first few days. The wound closed rapidly, and the patient left the hospital twenty-four days after operation.

This case is cited merely to emphasize the importance of early diagnosis and removal of a stone which, if disregarded, will surely, even though slowly, do serious damage to the kidney. The operative risk attending pyelotomy for removal of stone is so small that the surgeon should never hesitate to advise the operation. Most of the stones in the lower end of the calices and in the pelvis can be removed by this procedure. Now and then one will see a case in which it is not possible to extract the stone or stones through an incision in the pelvis, and it is in these instances that it becomes necessary to perform nephrotomy. Although this operation carries with it a higher mortality, a greater tendency to postoperative hemorrhage, and the possibility of overlooking some of the smaller stones, nevertheless we believe it is better to remove the stone or stones than to allow them to remain in the kidney until the subsequent damage done by them necessitates removal of the kidney.

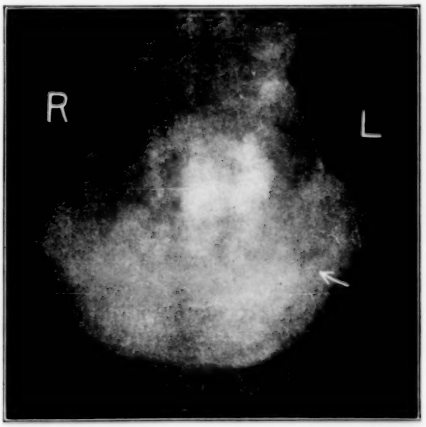


Fig. 4 (Case 3).—Bladder and lower portion of both ureters; the arrow points to the shadow of a small calculus in the left ureter.

The problem of the small stone in the pelvis or ureter presents still another phase in the management of calculus cases, which is well illustrated by the experience of one of us (J. S. R.) in four successive cases in this series. Since it is true that small stones as well as the

3. Mayo, W. J.: Removal of Stones from the Kidney, Surg., Gynec. & Obst. 24:2 (Jan.) 1917.

larger ones will at times cause a very severe colic, and since there is no accurate clinical method of determining the size and location of such a stone, every case in which stone is suspected as being the cause of colic should be studied in conjunction with the roentgenologist. If necessary, repeated roentgenograms should be made until one is satisfied as to the size and location of the calculus. Only then is one able to form any opinion as to whether operation should be performed without further delay, or whether the stones, because of their size and position, will probably pass either with or without the assistance of such maneuvers as can be carried out through the operating cystoscope. Case 3 is a case in point.

CASE 3.—J. L., a fireman, aged 31, was admitted (J. S. R.), July 20, 1921, complaining of left renal colic three months before. The history and physical examination were negative.

Cystoscopy revealed a normal bladder and normal right ureter; a catheter passed without obstruction, yielding clear urine. The left ureter was normal; the catheter met obstruction 10 cm. from the meatus and no urine was obtained.

Roentgen-ray examination revealed a stone the size of a pea in the lower end of the ureter.

The treatment consisted of repeated ureteral dilations and oil injections. The stone passed three months later, following a dilation.

Fig. 5 (Case 3).—Left ureter with an opaque catheter in position, showing relation of the shadow to the ureter.

Although no fixed rule can be laid down which will cover the entire question as to what is the proper procedure to advise in dealing with the smaller calculi, it is our belief, based on our experience, that unless the calculus is so impacted that it will in all probability be the cause of a hydronephrosis or pyonephrosis in a short time, these cases should be kept under observation for a certain period in order that the stone may be given an opportunity of passing spontaneously. If after six or seven months it is still in the same position, one may be reasonably sure that it will not pass of itself, and then the decision as to the method of removal must be made.

CONCLUSIONS

1. Renal colic is a constant symptom in all but the "silent" calculus cases.
2. Patients seek relief from pain more frequently than from any other symptom associated with calculus.
3. An early and complete urologic and roentgenologic examination should be made in every instance in which stone is suspected.
4. Early operative intervention is indicated as a measure of prevention against destruction of the kidney.
5. Stone in the kidney, if allowed to remain, eventually results in total destruction of the organ.
6. Small calculi should be observed for a reasonable time before operative removal is attempted. Many of them will pass spontaneously or can be assisted by repeated dilation of the ureter.

CARCINOMA OF THE PROSTATE*

ROBERT H. HERBST, M.D.
AND
ALVIN THOMPSON, M.D.
CHICAGO

In this brief report, we wish to discuss some observations and conclusions based on a review of the literature and our personal experience with the prostatic cancer problem.

The literature is crowded with case reports, methods of treatment and statistics of results, but few have considered ways and means by which a larger percentage of these patients may be discovered early enough to give them permanent relief.

The incidence of cancer of the prostate to that of benign hypertrophy varies in reports from 15 to 25 per cent. The differentiation of cancer by our present methods of local examination is at times impossible, so that it is probably safe to estimate that at least one in four tumors of the prostate is malignant.

Fully one third of these patients give evidence of bone metastases at the time they seek relief, and many who do not show such evidence have extensive local involvement, or metastases which are not demonstrable.

For these reasons, it is evident that a rather small proportion of the patients we treat are seen sufficiently early to give them permanent relief by any known method of treatment.

Unfortunately, the symptoms which might attract attention to the prostate gland do not appear until late in the course of the disease, in many instances after metastases have developed. Therefore, if we hope to discover these cases early they will have to be found in the course of a general physical examination. The prostate gland has been sadly neglected in the course of physical examinations, unless the patient happens to complain of some urinary disturbance, and unfortunately those suffering from cancer of this gland do not develop these symptoms until late.

The importance of a thorough investigation of the prostate gland in men more than 40 years of age undergoing a general physical examination cannot be overestimated, and this is the only measure by which we may expect to obtain better results by our present methods of treatment. The appeal for early diagnosis is applicable to all forms of cancer, but is more so in cancer of the prostate because symptomatically it is a silent disease until far advanced. We may improve these methods, but the great hope of the future in these

* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

unfortunate cases rests in our ability to teach the general profession to include careful examination of the prostate in their diagnostic routine.

Early malignancy in the prostate gland may be difficult to determine by ordinary palpation in the rectum, especially in the early stage, with one or more small areas of involvement. These can be felt more readily if a sound or a cystoscope is introduced into the urethra.

In reviewing the literature of the last six or seven years, it is evident that most of us, in our early experience, subjected patients to radium therapy who had both glandular and bone metastases. Most of those with bone metastases are now being eliminated, owing to present day methods of roentgenologic study. However, we are still unable to rule out glandular metastases, except in a small percentage, when the pelvic glands are palpable. It is quite evident that a fairly large proportion of patients treated with radium have glandular involvement, or at least the lymphatic channels which drain the prostate contain cancer cells, and this explains why we frequently fail to check the progress of the disease.

SIGNS AND SYMPTOMS

The urinary symptoms so characteristic of benign hypertrophy do not appear until late, unless the malignancy is associated with benign hypertrophy in the superior segment of the gland. Blood is not commonly found in the urine until late except in the adenocarcinoma type, because most of these growths develop behind the urinary tract rather than in it. Pain along the sciatic nerve is the one symptom associated with early malignancy that should attract our attention to the prostate in men of prostatic age. Pubic and sacral pain and pain in the back are usually significant of extensive local involvement, but may be caused in some cases by glandular or bone metastases.

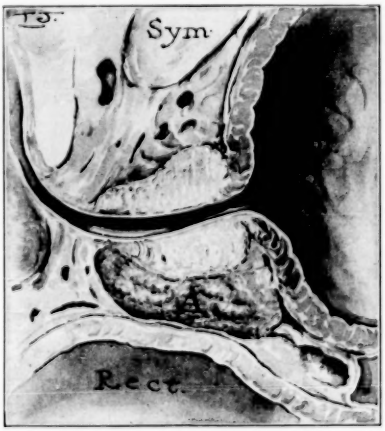


Fig. 1.—Malignant lower posterior segment of prostate (*A*), with benign hypertrophy in the superior part of the gland.

In addition to the characteristic rectal findings of a stony hard "frozen" gland in which one can usually feel some irregular nodules, we wish to emphasize the significance of the increased resistance which is often found in the intervesicular space, just above the prostate gland.

This infiltration produces an elevation of the trigon which is termed the "subtrigonal" plateau, when seen on cystoscopic examination. It can be felt more distinctly if a cystoscope is introduced into the bladder and the beak turned downward toward the trigon. Obliteration of the interlobular sulcus is also a characteristic rectal finding in malignancy.

The rich lymphatic drainage of the prostate gland explains the frequency and often early development of metastases and our failure to arrest the progress of the disease. Even though the gland is not extensively involved and metastases are not demonstrable, the lymphatic channels may be loaded with cancer cells. The degree of local involvement does not necessarily bear any relationship to the possibility of metastases. For this reason, a careful necropsy examination of the prostate gland should be made in persons dying from otherwise unexplained secondary carcinoma. In spite of our present day methods of roentgenologic and neurologic study, we fail to recognize the presence of metastases in some cases, especially those which occur in the pelvic and prevertebral lymph nodes. These patients usually complain of severe abdominal pain and pain in the back, which is probably due to pressure on nerve roots by the enlarged lymph nodes. We have found that many of these are not controlled by radium, and they progress rapidly and show glandular metastases at necropsy.

Although in these cases the lungs are rarely involved, one of our patients presented extensive metastases of the lung developing from a rather small prostatic tumor, without evidence of the existence of any other metastases.

PATHOLOGY

From the standpoint of therapy, a classification of cancer of the prostate into three pathologic types seems rational.

1. A scirrhus type, which usually begins in the posterior lobe in the form of small flat or nodular areas. These are harder than the normal gland tissue, but are at times difficult to diagnose by rectal palpation. This type may invade the entire posterior lobe and spread upward along Denonvillier's fascia between the seminal vesicles, sometimes involving them. Metastases are common and frequently develop early in the course of the disease.

Here we have a process developing and spreading behind the urinary tract rather than into it, so that these patients do not have any urinary symptoms until late, and not infrequently the symptoms caused by metastases are the first to appear.

The intervesicular area and the region of the seminal vesicles should attract our most earnest attention, if we hope to control the spread of the tumor. It is difficult to determine when this invasion occurs, but it is safe to state that at least the lymphatic channels which pass through this region carry cancer cells before any infiltration can be determined by palpation in the rectum.

2. Type 2 is a combination of Type 1, associated with a benign hypertrophy of the superior portion of the prostate. This is a rather common form of tumor and at times difficult to differentiate from simple hypertrophy, the malignant area often being discovered at the time of operation. When attempting to enucleate the adenoma, it is found adherent to the posterior lobe, or, on bimanual palpation after removal, the malignant areas are felt. In this type, urinary symptoms develop early, owing to the change in contour of the neck of the bladder and obstruction produced by the adenoma-

tous part of the tumor. In our experience, this type has been easier to control than Type 1 because, owing to the symptoms, the patients present themselves earlier for treatment.

A variation of this type is found in some of these tumors when the adenomatous portion is invaded by the cancer from the posterior lobe. These tumors were described by some of the earlier writers as adenomas of the prostate which had undergone malignant degeneration.

3. Type 3 is a less common form of tumor, in which the entire gland is the seat of an adenocarcinoma. These tumors are as a rule smooth and symmetrical but are harder than the adenoma. Enucleation, when attempted, is found difficult or impossible owing to the absence of a line of cleavage. Symptoms of obstruction occur early, owing to invasion of the prostatic urethra and bladder, but metastases do not occur as frequently as in Type 1 and Type 2. When patients suffer from this type, the condition is easier to control, because they are disturbed by urinary symptoms and seek relief before metastases have developed.

Many variations of the foregoing classification could be described, but a simple division of this kind is helpful in applying various methods of radium therapy used in the control of prostatic cancer.

Type 1 and Type 2 must be looked on as the most malignant forms of the disease, owing to the probability of early metastases; nevertheless, direct extension of cancer into the bladder and surrounding bony structure is not an unusual finding in Type 3.

We have obtained better results in Type 2 and Type 3 because the early development of urinary symptoms leads the patients to present themselves before metastases have developed. Also, in Type 2, the enucleation of the adenomatous part of the tumor gives opportunity to implant and apply radium more accurately to the malignant posterior lobe.

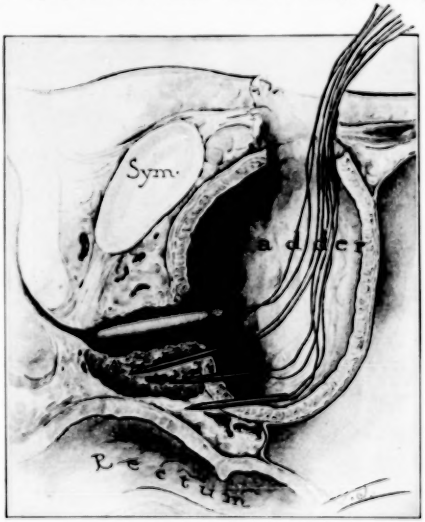


Fig. 2.—Tube of radium fitted into cavity left after enucleation of benign part of tumor; also radium needles embedded in malignant area (A). Two lower needles are passed through the posterior wall of the bladder, irradiating the subtrigonal area and the region of the seminal vesicles.

TREATMENT

More than six years ago, we began treating carcinoma of the prostate by embedding needles containing radium in the involved areas of the gland, through the opened bladder. Our reason for applying treatment through the opened bladder was twofold: (1) it gave easy access to the tumor and especially the subtrigonal area, and (2) it gave relief from urinary retention.

Later, following the reports of Barringer and others, we treated some of these patients by introducing needles through the closed perineum, but we found that it was most difficult and often impossible to carry the needles well up into the subtrigonal tissues and the region of the seminal vesicles.

In many instances, the extent of the infiltration above the prostate cannot be accurately determined by rectal examination; but, with a good suprapubic exposure, one is able to outline accurately the extent of the subtrigonal infiltration. Knowing that most of these cancers spread in this direction and get beyond control, we feel that it is most important to irradiate these areas first. Cancer cells are undoubtedly present in these tissues before any thickening can be made out, and it is our practice to irradiate this area even though nothing is felt, applying the same principle that we do when we attempt to cut through healthy tissue in the excision of malignant tumors; in other words, we go a little beyond the limits of the growth with the hope of preventing its progress.

In our efforts to control cancer, we frequently lose sight of the fact that many of these patients suffer from retention of urine, the obstruction being caused by the malignant tumor or an associated hypertrophy of the middle lobe. Under these circumstances, radium will neither relieve the retention nor improve the function in time to protect the upper urinary tract. Repeated catheterization, if not impossible, is usually painful and not well tolerated. Therefore, a suprapubic cystotomy, in addition to giving an excellent opportunity for the introduction of radium, protects the upper urinary tract and does much to make the patient comfortable during the weeks or months that treatment is carried on.

A part of the failure to secure good functional results following irradiation of the malignant prostate can be attributed to the fact that, in a large percentage of cases, the carcinoma is associated with benign hypertrophy, the radium having little or no effect on the adenomatous lobes. This usually occurs in the middle lobe, and the hypertrophied tissue must be enucleated if we may hope to relieve the obstruction. Again, many of these patients cannot be examined cystoscopically and the middle lobe will not be found until the bladder is opened; all sound arguments in favor of suprapubic cystotomy.

Some of our best results have been obtained in those cases in which we have been able to enucleate an adenomatous middle lobe; following which, a tube of radium is fitted into the cavity and several needles containing radium are inserted into the malignant part of the remaining shell. This may be repeated if the

bladder is kept open; or subsequent applications are made by passing a staff carrying a tube into the urethra or by introducing long needles through the perineum, or both.

In the treatment of these cancer patients, we must not forget that many of them are suffering from the effects of retention and that we have the same problems of elimination that we have in the man with benign hypertrophy. Severe toxemia may be mistaken for cachexia, and it is surprising how some of these patients improve following preliminary treatment such as flushing with large quantities of water, relief of retention and attention to the bowels. It is just about as irrational to apply radium therapy in the case of the severely toxic patient without preliminary drainage as it is to attempt the enucleation of the benign prostate under the same circumstances. Patients with demonstrable metastases may get two or three fairly comfortable years from a suprapubic permanent drain. Even patients who carry a small amount of residual urine will be relieved of pain and show a temporary improvement in general health following the institution of such drainage.

A fibrosis, with narrowing of the neck of the bladder, has interfered with urinary function in some cases. In this condition, dilation has been extremely difficult, and in one of our patients in whom the cancer appears to be controlled we have been compelled to continue suprapubic drainage, although we have dilated the neck of the bladder for a year and a half. In another case, we excised a wedge-shaped piece of tissue from the internal urethral orifice without much improvement in function.

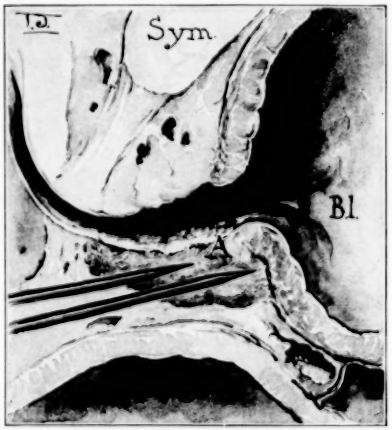


Fig. 3.—Long needles embedded in malignant posterior segment (*A*) of prostate. These have been passed through the perineum.

Most observers agree on the value of the roentgen ray in conjunction with radium therapy. The relative value of each is difficult to determine, but here, as in most fields, treatment must be carried out by one of large experience in order to obtain results.

After giving perineal insertions a fair trial, we have again returned to our original method of suprapubic exposure and embedding of needles, utilizing the perineal method and the intra-urethral applications as supplementary forms of treatment.

(Abstract of Discussion will be found on page 1688, this issue.)

Syphilis Statistics in Japan.—Dr. Hata has collected data on the reproductive power of women married for three years or more who show a positive Wassermann reaction. He gives the following percentages: Not impregnated, about 40 per cent; impregnated, about 60 per cent. Among the children of these syphilitic mothers, there were 28 per cent. premature and only 30 per cent. survived more than two years, only a third of whom will live a natural healthy life. Maternal syphilis is one of the most serious factors in the problem of repopulation.

THE ANILIN DYES IN THERAPEUTICS*

JOHN W. CHURCHMAN, M.D.
NEW YORK

Of the various features of the anilin dyes which make them an attractive subject for experimental investigation, I will consider the three with which my own studies of gentian violet (and more recently of acid fuchsin) have been chiefly concerned.

THE SELECTIVE POWER OF THE ANILIN DYES

One of the most striking examples of selective bacteriostatic power is furnished by gentian violet. The behavior of bacteria toward this dye follows pretty closely the Gram reaction, and this feature is characteristic also of other triphenylmethane dyes, among them magenta.[1] These facts are now well known; but I have recently been able to show that the behavior of bacteria toward acid fuchsin (a sulphonated triphenylmethane) is, in certain respects, the exact reverse of their behavior toward the basic dyes. If bacteria are exposed to acid fuchsin and planted on plain agar, it is found that it is now the gram-positive spore-bearing aerobes which survive, and the commoner gram-negative bacteria which die. A plate stroked, for example, with *Bacillus paratyphosus* and *Bacillus pseudo-anthracis* which have been exposed to acid fuchsin will show vigorous growth of the latter, and none whatever of the former; while if the experiment is done with gentian violet or magenta there will be vigorous growth of *B. paratyphosus* and none whatever of *B. pseudo-anthracis* (Fig. 1). I have previously shown that it is quite a simple matter to rid a culture of gram-negatives of contaminating gram-positives by exposing the mixture of the two organisms to gentian violet, previous to plating; and it is equally easy to rid gram-positive spore bearers of contaminating gram-negatives by exposing the mixture to acid fuchsin. One can thus quite easily from a mixture, let us say, of *Bacillus pyocyaneus* and *Bacillus megatherium*, pick out at will either organism in pure culture by the use of these two dyes (Fig. 2).

It proves, moreover, to be the case (experiments with sulphanilic acid, chromotropic acid and ethylsulphonic acid furnished the proof) that it is the sulphonic acid group in the acid fuchsin which accounts for this reverse selective power. We have succeeded, therefore, for the first time in determining which part of a dye molecule is responsible for its

* From the Department of Hygiene, Cornell University Medical College.
* Read before the Section on Pharmacology and Therapeutics at the Seventy Third Annual Session of the American Medical Association, St. Louis, May, 1922.
1. Churchman, J. W.: J. Exper. Med. **16**: 221 (Aug.) 1912; **17**: 373 (April) 1913.

selective activity, and it is interesting that this portion is colorless (Figs. 3, 4 and 5).

The facts just referred to would seem to bring the problem of the Gram reaction very much nearer solution. Since opposite selective activities have been demonstrated for two dyes (magenta and acid fuchsin), and since the chemical group in the latter dye responsible for its selective activity has been determined, data would seem to be at hand for a chemical explanation of the difference between the two types of organism.

The facts just cited are significant for the problems of chemotherapy in the following respects:

1. It is clear that the cleavage of bacteria represented by the Gram reaction may have therapeutic importance. This matter is not so simple as appeared to be the case when the parallelism between Gram reaction and gentian violet reaction was first observed. One of the facts which complicated matters was brought to light by the observation last year of two strains within a pure culture of *Bacillus coli*. Both of these were gram-negative. Yet one of them grew well in the presence of gentian violet, while the other would not grow at all. This is one of the pioneer observations of microbic dissociation, as it has since come to be called.[2]

Fig. 1.—Plates stroked with B. parathyphosus and B. pseudo-anthracis which have been exposed to magenta (*A*) and acid fuchsin (*B*): *Para*, B. paratyphosus, unstained for control; *Para'*, stained B. parathyphosus; *P.S.*, B. pseudo-anthracis, unstained for control; *P.S'.*, stained B. pseudo-anthracis. In Plate A (magenta), stained paratyphosus has been unaffected; stained pseudo-anthracis has been killed. In Plate B (acid fuchsin), stained paratyphosus has been killed; stained pseudo-anthracis is unaffected.

It is clear, too, that the recent observations with acid fuchsin make it necessary to modify somewhat my published statement that "gram-negative organisms are less susceptible to many—possibly to all—selective bacteriostatic substances than gram-positive organisms"; for, as compared at least with the spore-bearing aerobes, they are not less but more susceptible to acid fuchsin. But these facts only emphasize the soundness of the principle of selective bacteriostasis along the line of cleavage indicated by the Gram reaction.

What is the fundamental nature of these selective activities? An easier penetrability of the gram-positive organisms has frequently been assumed, to explain their susceptibility to the triphenylmethanes. But acid fuchsin, as well as gentian violet, penetrates the gram-positive spore bearers more readily than it does the gram-negatives; yet it does not kill them, though it kills the negatives. Moreover, gentian violet penetrates the spores little if at all, yet they are highly susceptible to it; and gram-negatives may be deeply stained without killing them. Something other than penetration must therefore be concerned. It is tempting to assume that electrical adsorption plays a part, particularly since basic dyes—which are electropositive—behave in one way toward bacteria, while acid dyes (which are electronegative) behave in certain significant respects in exactly opposite ways. These leads would seem to point the way to a better understanding of the chemistry of the spore and of the mechanism of the Gram reaction.

2. Anilin dyes, however, are not only selective as between species of bacteria; they are also selective as between bacteria and tissue cells. It was shown in 1913 that the living nucleus can be stained by gentian violet, a dye which kills many organisms.[3] Later it was shown by injections of the dye into the human knee joint during life that the nuclei of the synovial membrane may be stained without injury.[4] Complete experimental evidence has thus for the first time been brought for the principle that agents which kill bacteria may be innocuous for the vital part of tissue cells, even though they have penetrated it.

I have already indicated by clinical studies some of the possibilities of selective chemotherapy by showing, in a study of amputation wounds at the Walter Reed Hospital, that it was comparatively easy to eliminate the gram-positive *Bacillus diphtheriae* from granulating wounds with gentian violet, but extremely difficult to get rid of the gram-negative *B. coli*. This was a deliberate attempt to apply clinically the principle of selective bacteriostasis along the lines indicated by laboratory studies, and it was a successful attempt. A further step which might be taken in the same direction is suggested by the recent studies with acid fuchsin. This dye kills *B. pyocyaneus*, an organism which frequently occurs as a troublesome secondary invader of wounds, and which is almost unaffected by gentian violet. There may well be many other similar instances of selective activity; and since the number of bacteria is large and the number of dyes and related substances huge, the possibilities seem sufficiently great. The demonstration that gram-negatives are more susceptible to acid fuchsin than gram-positive spore bearers, and the successful isolation of the chemical group responsible for this reverse

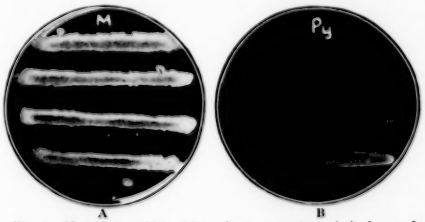


Fig. 2.—Method by which either of two organisms desired may be isolated from a mixture of gram-positive spore bearers and gram-negative bacteria by exposing the mixture to acid fuchsin or gentian violet. Plate A has been stroked with the mixture after exposure to acid fuchsin: a pure culture of B. megatherium results. Plate B has been stroked with the same mixture after exposure to gentian violet; a pure culture of B. pyocyaneus results.

2. Churchman, J. W.: J. Exper. Med. **33**: 569 (May) 1921.

3. Churchman, J. W.: Proc. Soc. Exper. Biol. & Med. **9**: 120, 1913-1914.

4. Churchman, J. W.: Treatment of Acute Infections of the Joint by Lavage and Direct Medication, J. A. M. A. **70**: 1047 (April 13) 1918.

selective power, open up new lines of approach in this field.

BACTERIOSTASIS

Since the time of Ehrlich, *sterilisans magna*—the destruction of all invading organisms at one stroke—has been the ideal of the therapeutics of infection. If the substances capable of producing such a result were always nontoxic to the host, only that ideal should be pursued. But this is not the case; and the question arises whether there may not also be a place in therapeutics for the principle of bacteriostasis: for the use, that is to say, of substances which—in dilutions too weak to do the slightest damage to tissue cells—prevent the growth of bacteria (though they may not

Fig. 3.—Opposite selective powers of sulphanilic acid and gentian violet: Plate A, gentian violet; Plate B, sulphanilic acid; *P*, B. prodigiosus unstained for control; *P'*, B. prodigiosus stained; *A*, B. anthracis unstained for control; *A'*, B. anthracis stained.

kill them) and thus give the tissues a chance to recover of themselves.

Gentian violet possesses both bactericidal and bacteriostatic properties. The former are well brought out by means of divided plates, and its possibilities for technical tricks in bacteriology are numerous. A contaminating colony on a Petri dish, for example, may be readily controlled by ringing it with the dye (Fig. 6), and separation of gram-positives in pure culture may be accomplished with great nicety by growing the organisms on mediums containing the dye. In the case of gentian violet, bactericidal and bacteriostatic properties run parallel; but this is not true of acid fuchsin and related substances, a puzzling fact for which an explanation has been suggested but not established.

Whatever the mechanism of bacteriostasis may be, it would seem to be a sound therapeutic principle. I have shown that successful use may be made of the principle in the sterilization of acutely infected joints and in ridding stumps of an infection with *B. diphtheriae*. In the joint—a closed cavity—the problem is relatively simple; but one should not expect too much (in spite of some encouraging results already reported) from the use of similar methods in infections of the chest, in which the problem is enormously complicated. Yet even in the chest there seems to be no good reason why the well-known benefits to be derived from aspiration alone, in the early stages of infection, cannot be supplemented by mechanical cleansing and the injection of bacteriostatic agents.

PENETRATION

It is the penetrative power of anilin dyes which, more than any other characteristic, has attracted attention to them. Many observers have noticed that, if injected into a cavity such as the bladder, these dyes could be found in the deeper epithelial cells. My own observation is the only one that has been made on the living human being. Previous to a midthigh amputation I injected the knee joint with gentian violet according to the technic and with the apparatus described for the treatment of acute arthritis. The synovial membrane was prepared for microscopic study by a special technic, and in it the gentian violet could be seen to have penetrated down to the subendothelial layers.

Nor is there any doubt about the ability of dyes to penetrate living bacteria themselves. This has been proved by adding gentian violet to a suspension of *B. coli*, and picking out small groups of the organisms by the Barber technic. These deeply stained individuals grow readily when planted on plain agar, and must therefore have been stained while alive. The significance of the observations already described on the behavior of acid fuchsin and related sulphonic acid substances must be referred to in this connection. When we speak of penetration of bacteria by a dye, we think of permeation of the cell by the whole dye molecule or at least by the visible colored portion of it. It may be, however, that union between the bacterium and the uncolored—though active—portion of the dye has occurred. In the case of acid fuchsin, for instance, the sulphonic acid group is responsible for the dye's reverse selective action. This group is colorless and would not be seen in the organism, though proof of penetration of the gram-negatives is furnished by their death.

LIMITATIONS OF ANILIN DYES

A few of the advantages of the anilin dyes have been pointed out; it remains to consider some of their limitations. They are not very powerful bactericides, though they lend themselves to combinations with substances which are, and so may provide these with their permeating qualities. But this is a procedure which must have sharp limitations. The dyes are chosen for this kind of chemical manipulation because

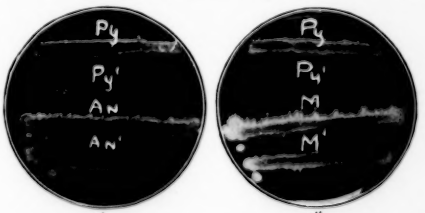


Fig. 4.—Reverse selective power of chromotrophic acid. *Py*, B. pyocyaneus, unstained for control; *Py'*, B. pyocyaneus, exposed to chromotropic acid; *An*, B. anthracis, unstained for control; *An'*, B. anthrasis, exposed to chromotropic acid; *M*, B. megatherium, unstained; *M'*, B. megatherium, exposed to chromotropic acid. The gram-negatives have been killed; the gram-positives are unaffected.

they are not toxic for tissue cells. The substances, like mercury, with which they are usually combined are toxic; and the combinations must therefore be made with great nicety if their purpose is not to be defeated.

Moreover, the activity of the dyes may be impaired by substances in their environment. The inhibitory effect of serum is well known, and there may be other deterrent influences not now recognized. I have shown, for example, that we are not justified in assuming that substances applied to infected surfaces neces-

sarily reach the invading organisms; the secretions may provide a mechanical barrier against the antiseptic as effective as a layer of petrolatum. If one is working with colorless substances, this fact may not be appreciated; but with dyes, whose course can be followed with the eye, the fallacy of applying antiseptics without preliminary cleansing becomes at once apparent. For treating joints an apparatus has been devised which provides a method of satisfactory preliminary cleansing.[5]

Moreover, the dyes are unstable. Gentian violet injected into the blood stream disappears within two hours; it is incorrect to assume that it circulates very long as such. Perhaps the blood stream could be kept saturated, by repeated injections, with a bacteriostatic substance, and the course of a septicemia thus be checked; but there is no evidence at present that anything like a *sterilisans magna* can be achieved by dyes.

CONCLUSION

The investigation of the problems of infection by a study of the anilin dyes is bound to lead us forward. What we are after is not only the establishment of the therapeutic value of a particular substance (if the principle of selective sterilization becomes established, more than one substance will be used and the substances used may not be dyes at all), but also a clearer understanding of the whole mechanism of selective chemotherapy. And this goal we shall certainly reach.

ABSTRACT OF DISCUSSION

Dr. Carl Voegtlin, Washington, D. C.: This problem of the relation between chemical constitution and physiologic action is fundamental, and it is of importance to ascertain what effect the modification of a dye molecule or other molecule will have on the biologic properties of a given substance. I was particularly interested in the effect of the introduction of the sulpho group. I have conducted such experiments with arsenicals. Take an arsenical that is very effective in the treatment of certain diseases, and introduce a sulpho group, and the toxicity and therapeutic action will

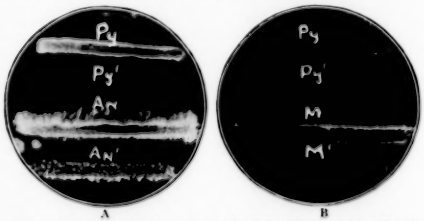


Fig. 5.—Reserve selective power of ethyl-sulphonic acid. Notation same as in Figure 4. The gram-negatives have been killed; the gram-positives are unaffected.

decrease. I do not know just how to explain these findings, but I think we have to keep in mind that when we change the chemical constitution of a compound we undoubtedly also change its physical properties. Physical properties have a lot to do with biologic action. In the case of the arsenicals, we find that the introduction of the sulpho group causes the compound, which before the introduction of the sulpho group was retained by the body, to pass out with the urine with the greatest rapidity. Such questions, therefore, are very much in need of investigation in order to put chemotherapy on a rational basis and to get away from testing out empirically thousands and thousands of compounds. We want to proceed in a more logical and scientific way.

Dr. Ralph H. Major, Kansas City, Mo.: From the bacteriologic standpoint, Dr. Churchman's method is of great assistance in the isolation of certain organisms in pure culture from contaminations. From the standpoint of therapy, I had an opportunity of trying out gentian violet during the recent influenza epidemic, in twenty-seven cases of empyema with very gratifying results. Unless there were mechanical problems present, we were able, as a rule, to clear up the infection by the instillation of gentian violet into the pleural cavity, and only one fourth of our patients so treated later came to operation. I have seen four cases of pneumothorax, complicated by *Staphylococcus aureus* infection, become sterile following the instillation of one dose of gentian violet. In

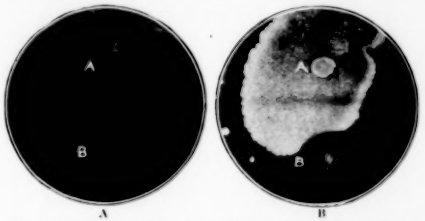


Fig. 6.—Method by which a contaminating colony of B. subtilis may be restrained by ringing it with gentian violet. At *A* and *B* (Plate A) inoculations of B. subtilis have been made; *B* has been ringed with the dye. Plate B shows the same Petri dish after twenty-four hours' incubation.

two of these cases I have had the opportunity of seeing in vivo precisely the same thing that Dr. Churchman described in the cultures in the test tube. In these individuals the fluid in the chest contained *Staphylococcus aureus* and *Bacillus influenzae*. The influenza bacillus persisted after gentian violet instillation, while *Staphylococcus aureus* disappeared. In five cases of pyelitis in which there were both colon bacillus and *Staphylococcus aureus*, gentian violet instillation cleared up the staphylococcus infection. It would be interesting to see whether the combination of the two dyes with which Dr. Churchman has worked, or perhaps the injection of first one and then the other, will not clear up certain mixed infections.

Dr. John W. Churchman, New York: I want to correct a possibly false impression that is suggested by Dr. Major's remarks. I showed last year that the addition of a very small amount of heat increases very greatly the effect of dyes. Take gentian violet, for instance, and add it cold to a colon bacillus culture, and one can leave it for twenty-four hours without killing the organisms. Heat the culture to 45 C. for half an hour and one may kill them with fair certainty. In the sulphonic acid group, it is almost necessary to apply the dye warm in order to bring out its reverse selective action. Acid fuchsin will do what I said it will do cold, but more rapidly when it is hot. If any one attempts to use these substances clinically, one should always use them as hot as the body will stand.

5. Churchman, J. W.: Sterilization of Closed Cavities by Lavage and Staining with Gentian Violet, J. A. M. A. 77:24 (July 2) 1921.

Swiss Social Hygiene Society Activities.—In addition to holding 100 conferences on questions relating to the protection of the family and public morality, during the fiscal year, 1921-1922, this society has dealt with the subjects of public health, nursing, tuberculosis, alcoholism and other health conditions. Stereopticon lectures on venereal disease were given in the barracks of many of the larger cities, and exhibitions, with posters and wax models, were arranged at Neuchatel, Lausanne and Geneva. Two pamphlets, entitled "Beaucoup d'enfants" and "Evil Effects of Alcohol," written by Drs. Hoffman and Revilliod, respectively, were widely distributed, and articles on the protection of the family were published in the newspapers throughout the country. Every young man who declared his intention of marrying was presented with a pamphlet dealing with marriage relations.

A NEW TECHNIC FOR PERFORMING PERINEAL PROSTATECTOMY *

ARTHUR B. CECIL, M.D.
LOS ANGELES

It has for some time been my conviction that if Young's operation could be altered in such a manner as to rid it of technical difficulties, the procedure would lend itself to more general use. I therefore turned my attention toward the development of a technic which, it seemed to me, would rid perineal prostatectomy of any considerable technical difficulties and which would absolutely insure the integrity of the muscles of urinary control and at the same time protect the rectum from injury.

In reviewing the technic of Young's procedure in relation to the anatomy of the perineum, it will be seen that it is necessary to make very accurate entrance to the membranous urethra just back of the external sphincter muscle. To the operator who is not thoroughly familiar with the anatomy of the perineum, this is somewhat difficult or at least uncertain, and my first problem therefore seemed to be to alter this part of the procedure in such a manner that it would not be necessary to introduce a tractor through the membranous urethra, or to drain the bladder from this region. The result was the devising of a tractor which could be easily introduced through the entire length of the urethra, and which when opened in the bladder would be efficient in bringing the prostate into the wound, thus avoiding any possibility of injuring the

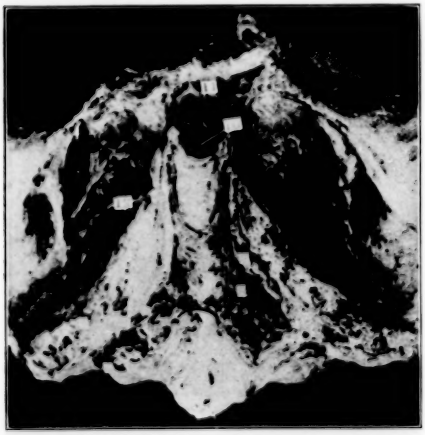


Fig. 1.—Anatomic dissection of perineum: *A*, point at which incision should be made across recto-urethralis muscle.

external sphincter muscle, and avoiding unnecessary scar formation in the region of this muscle.

The tractor which has been devised consists of a long shaft with a curved end, quite similar to the ordinary urethral sound. It has been so arranged that by turning a thumb screw at one end, the other end of the tractor is thrown at right angles. This rotation is brought about by a stout wire which runs through the shaft of the tractor. A handle has been arranged on the tractor, set at such an angle that by lifting up on the handle, the bladder end of the tractor produces traction on the prostate along practically the same plane as is generally brought about when Young's tractor is introduced through the membranous urethra. There

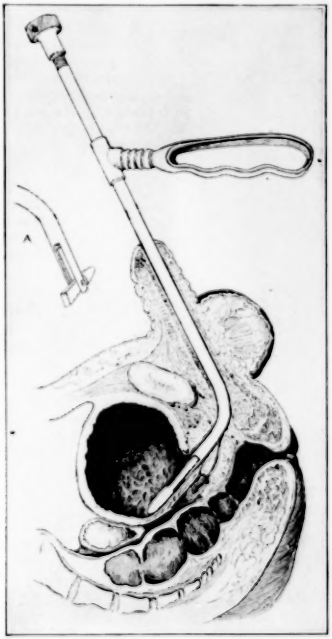


Fig. 2.—Incision through skin and subcutaneous tissues, with tractor introduced and being used as a sound.

may be slight variations in this relationship, according to the size of the prostatic tumor. By turning the thumb screw in the opposite direction, the right angle piece may again be brought into line with the tractor. A tractor devised much after the nature of this one, except for being straight instead of curved as a sound, has been found extremely efficient when the operation is performed by the technic of Young, as this type of tractor has the advantage of being easily introduced.

This modification of Young's technic having been arranged in order that the external sphincter mechanism might be easily preserved from injury, the only remaining difficulty would seem to be the uncertainty in dividing the recto-urethralis muscle. This difficulty has been met by changing the shaft of the handle of Young's bifid and spatula retractors, so that while these retractors may be firmly held in position, at the same time the operator may have the advantage of placing a gloved finger in the rectum to the apex of the prostate, and thus the dissection may be carried out

* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

under the sense of touch rather than by purely anatomic landmarks. As a matter of fact, if the operation is carried out by the sense of touch, anatomic landmarks will be followed.

The method of performing prostatectomy by this technic, then, consists in placing the patient on the table in the exaggerated lithotomy position, with the bladder partially filled with fluid, which permits the easy opening of the tractor. The curved tractor is passed into the bladder, and the V-shaped incision made in the perineum. In this connection one should note that the limbs of the curved V-shaped incision extend quite far back, and in making the incision it should be carried definitely through the subcutaneous tissues rather boldly. The finger is then passed down into the fossa in front of the fibers of the levator ani muscle. The bifid retractor is now put in.

Fig. 3.—Sagittal section: tractor in place; *A*, bladder end of tractor after it has been opened.

With a pair of thumb forceps, the tissues are picked up just back of the bulb, and the central tendon is divided straight downward. With the set-off bifid retractor now held firmly in place, a gloved finger is introduced into the rectum, and by means of a specially devised delicately curved clamp, the entire bridge of tissue down to the apex of the prostate is grasped under the direction of the guiding finger in the rectum. The tissues are now cut across above the clamp with definite assurance that no injury to the rectum is occurring, and in this manner the fibers of the recto-urethralis muscle are divided far back rather toward the rectal wall than toward the region of the external sphincter. The handle and shaft of the tractor are now brought toward the operator, thus throwing its bladder end freely into the bladder cavity so that the tractor may be easily opened, and by turning the thumb screw the bladder end of the tractor is thrown at right angles to the shaft. By now lifting on the tractor and pushing it away from the operator, the apex of the prostate is brought quite far up into the wound. The fibers of the levator ani muscle are pushed aside and the rectum is stripped back along the fascia of Denonvillier.

Up to this point no opening has been made into any portion of the urethra. The usual lateral incisions of Young are made, as these have been found preferable to throwing back a large bridge of tissue. Adenomatous masses are freed by a blunt dissector, and removed through each lateral cavity by the technic described by Young. Having removed the masses from the lateral cavities and any suburethral lobes which may be encountered, an incision 2 cm. in length is made through the right lateral cavity, and the edges of the prostatic urethra are picked up with Allison forceps. In some instances this is not necessary, because the prostatic urethra may be torn in removing the lateral lobes.

The edges of the prostatic urethra having been picked up, the tractor is removed, and in difficult cases it may be found advisable to introduce the straight tractor through this opening. A finger is passed in through the prostatic urethra, and the neck of the bladder palpated. Should an intravesical lobe be encountered, it is removed through this opening. Should the neck of the bladder be found contracted, it may be easily divided. After removal of all obstructing tissue, a single way drainage tube is introduced through this lateral cavity into the bladder and packed about with cephalin gauze to control hemorrhage.

Fig. 4.—Posterior bifid retractor set off. Retractor has been introduced into the fossae between the transversus perineae muscles and the levator ani.

The closure of the wound in no manner differs from Young's original technic, and the postoperative care of the patient is so well known as to require no repetition here.

CONCLUSION

The technic which I have described has as its advantages definite preservation of the external sphincter muscle; the ability to carry out the perineal dissection

with a guiding finger in the rectum; location of the opening for drainage far back in the prostatic urethra, which tends toward more rapid healing, and the absence of scar formation in the region of the external sphincter muscle.

It is believed that this technic will make it possible for surgeons to perform Young's perineal prostatectomy more easily than has heretofore been the case.

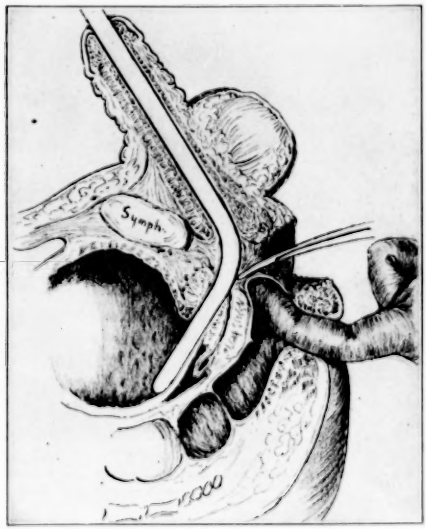


Fig. 5.—Sagittal section: finger in rectum guiding curved clamp as it is pushed down to the apex of the prostate.

ABSTRACT OF DISCUSSION

DR. JAMES A. GARDNER, Buffalo: We have always had more or less friendly controversy between the advocates of the suprapubic and those of the perineal operation. In the perineal operation a slight incontinence is frequently found when men laugh or cough. When prostatics consult you they are ready to submit to any operation. When they return home after operation, if they have any incontinence, every one hears about it; but if they return home completely cured, nobody hears of it because, of course, that is what they came for. When I was doing the perineal operation I encountered the same complication, and for that reason I adopted the suprapubic method because it seemed more fool proof; there is no sinus and the patient has control. By this method the physician guards the rectum, and when he reaches the prostate he enucleates it just as is done from above. Dr. Cecil has gone a long way toward popularizing perineal prostatectomy. There is no question that more suprapubic operations are performed because many surgeons, seeing the operation, think it is not a difficult procedure. They try it, the patient lives and does not have incontinence, and soon they pose as genito-urinary surgeons.

DR. HENRY G. BUGBEE, New York: One of the most important features, or the most important feature, to my mind, in the operation of prostatectomy is the control of hemorrhage. Various methods have been advanced from time to time to control the hemorrhage, particularly in the suprapubic operation. Hagner devised his bag, subsequently modified by Pilcher, and later on suggested putting a piece of cotton gauze over the bag to promote clotting. Barringer suggested packing the cavity. Recently I have been packing around the bag, placing this packing carefully, particularly posteriorly to the bag so that it holds down the torn edge of the bladder wall, as that is where most of the bleeding takes place. By using this packing it is not necessary to put much traction on the bag, and this avoids the muscular spasm, which is often very troublesome. The bag and packing are removed twenty-four hours later through the suprapubic wound. Operating in two stages, at the second operation the stitches are not removed. The enucleation is carried out through the sinus with the finger and when the lobes are freed by holding them down in the capsule with the finger in the bladder, there is no difficulty in lifting them out. The sinus, which is very small, heals readily.

DR. ARTHUR L. CHUTE, Boston: I should like to express my admiration for Dr. Cecil's operation. I am sure it will accomplish his desire. For a long time I have employed this principle in all my perineal operations. I do not use such attractive instruments as he does, nor do I think they are necessary. If one will be careful to make the incision through the tip of the prostate onto a sound placed in the urethra, he can easily introduce through the incision a straight tractor, pull the prostate down, and go ahead with the enucleation without the more elaborate apparatus that Dr. Cecil has found useful. It seems to me that by this technic not only does one avoid actual injury to the fibers of the sphincter, but one also avoids what I consider fully as frequent a cause of incontinence, and that is, the getting of the muscle fibers caught in the perineal scar. With the prostate exposed, one can use either a lateral or a transverse incision in the capsule. One can make use of a transverse incision if one wishes. The posterior flap of the capsule acts as an extra protection to the rectum. I believe that the use of the suggestion that Dr. Cecil has made will insure us against injury of the sphincter and consequent faulty control of the urine, and if one adds to it a transverse incision in the prostatic capsule and turns the flap back, one will in a large measure avoid the possibility of injury to the rectum.

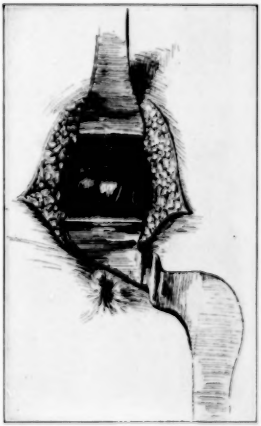


Fig. 6.—The tractor has been pushed into the bladder and opened. The tissues which have been clamped have been cut across, and the prostate has been pulled up into the wound.

DR. A. RAYMOND STEVENS, New York: It is a great compliment to Dr. Young that so many years have gone by without any material modification of his operation being offered until this spring, when both Dr. Geraghty and Dr. Cecil have come forward with new suggestions. They mark definite advances, and will tend to make the operation more successful in the hands of the average operator. Dr. Chute took the words out of my mouth as to a means that I think many of us have employed in getting a little farther away from the external sphincter. I have been inclined to make my incision in the urethra farther and farther posterior, until recently I have been going right through the apex of the prostate. That also makes it very easy to palpate the vesical neck before closing the wound. Another point on which I think Dr. Cecil is to be congratulated is that he comes out

very frankly and suggests that we protect the rectum by keeping one finger in this viscus when cutting the recto-urethralis muscle. I have always felt that it was a matter of pride to cut through this muscle without this guide; but if no one is looking, I often put my finger in the rectum.

DR. A. I. FOLSOM, Dallas, Texas: The question Dr. Cecil brought up is very interesting. I have always felt that the perineal procedure has always been described very accurately up to the point Dr. Cecil is talking about, the external sphincter. In discussing the matter this morning, Dr. Cecil told me that Dr. Young has always pushed these fibers up with the back of the knife to get them out of the way. That has been hard for me to understand in any description of the operation, but I think Dr. Cecil's description will help many of us who have been chary about attacking the thing in this way. I think if we get enough of these perineal prostatectomists advocating modifications they must have a reason for them, and pretty soon we shall get the truth of every one's experiences in perineal prostatectomy. As these men have begun to do it themselves, they realize that perfection has not been reached, so I feel that there is an opportunity for good in the future if we go to the bottom of the situation and find out the truth. Regarding the question of

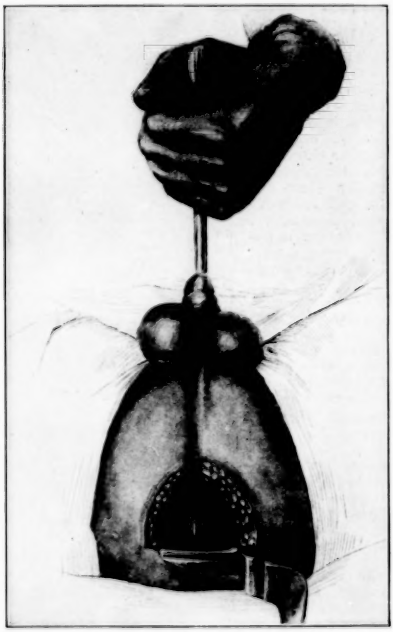


Fig. 7.—Prostate drawn into wound after rectum has been stripped back along the fascias of Denonvillier. A lateral incision has been made and the right lateral lobe has been removed. An opening has been made into the prostatic urethra through this incision.

incontinence following prostatectomy, one cannot avoid the issue. Those patients are more or less incontinent for a certain length of time and there is no use to dodge the question at all. A few years ago it was stated that the external sphincter had nothing to do with this; it was proved by a beautiful series of roentgenograms that the internal sphincter was the all important sphincter, which I did not believe; and, as Dr. Cecil shows in his work, he himself believes that it is the external sphincter that really maintains the closed bladder.

DR. JOHN R. CAULK, St. Louis: Dr. Cecil is responsible for one of the great advances in this line. I do not believe it takes much courage, but I think he has done his duty nobly. I had one or two rectal complications, and the striking thing was that they always came when the case was simple and easy, so it is not the difficult cases that have the complications in all instances. They come when we do not

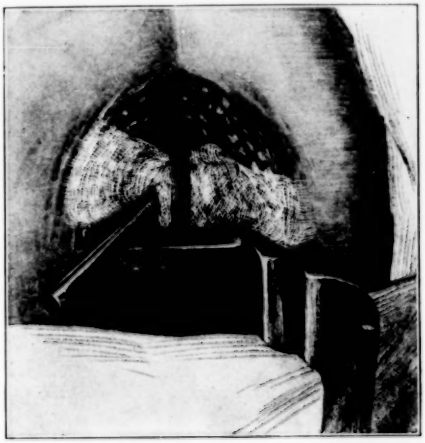


Fig. 8.—Prostatectomy completed: drainage tube introduced through right lateral cavity into bladder. Gauze packs have been introduced to control hemorrhages.

expect them. As to the incontinence, that occasionally occurs to all of us, although it is usually temporary. Because of the rectal complications I took up the two-stage operation, and have not regretted it. It is attended with a little more reaction to the patient, but he gets well and the final results are good. The fact that Dr. Cecil protects the sphincter and the rectum makes the operation simple, and I think it will avoid the complications which we used to have. If this is so, the perineal operation should be the one of choice in the hands of those familiar with it.

DR. ARTHUR B. CECIL, Los Angeles: I have neglected giving credit to Dr. Chute for the idea on which I have based this procedure. Dr. Chute, in discussing perineal prostatectomy last year in Montreal, stated that it had been his principle to open the prostatic urethra far back, in fact, at the apex of the prostate, and in this way he had guarded the sphincter mechanism. To the average operator, however, it is not always easy to make this dissection accurately to the apex of the prostate, and that is the reason why I have devised the procedure which I have described, which has for its prime importance the preservation of the sphincter mechanism of the bladder, the absolute protection of the rectum, and a wider field of application than has heretofore been possible in perineal prostatectomy.

Infant Mortality and Nursing Service in Uruguay.—According to Dr. Julio A. Bauzá, director of infant milk stations in Montevideo, in 1920, over 2,000 infants under 2 years of age died out of a population of 363,000 inhabitants. The Public Health Department spends about one million pesos annually in infant homes, maternities and other infant welfare activities. The Red Cross of Uruguay has offered to furnish 100 visiting nurses for infant welfare work, the need of which has been very great.

SPINAL ANESTHESIA IN PROSTATECTOMY *

ARTHUR L. CHUTE, M.D.
BOSTON

In the enucleation of a prostate, the anesthetic requirements differ from those met in surgery in general. It has been shown by many observers that the urinary back pressure that we find in a considerable proportion of prostatic cases renders the kidneys especially susceptible to the irritating effects of ether. I believe it was the late John C. Munro who showed, some years ago, the irritating effect that the inhalation of ether had on the supposedly normal kidney. Observations were made on the urine of a series of patients, before and after taking ether. In a considerable proportion of cases, it was found that, after ether, the urine showed some albumin in cases in which the urine had previously shown none. This was accepted quite properly, I believe, as an indication that ether frequently irritated the normal kidney.

Therefore, one of our first requirements for an anesthetic in prostatectomy is that it spare the kidneys to as great a degree as possible. Another requirement is that it should not overtax the heart, since a large proportion of our patients requiring prostatectomy have arrived at an age at which they have more or less weakened heart muscle, and the stertorous, labored breathing and cyanosis that I see, not infrequently, with inhalation anesthesia certainly do not spare the heart. Furthermore, we need good relaxation of the abdominal walls in most cases of prostatectomy, for in spite of what seems to me to be the very definite advantages of perineal prostatectomy for certain cases, the greater number of operations are performed, and I believe will continue to be performed, by the upper route. In this operation, the relaxation of the abdominal wall is very essential, especially in the fat man.

Fig. 1.—Needle inserted in interspace between the third and fourth lumbar vertebrae; crests of ilia marked by iodin; a line between them crosses the interspace between the fourth and fifth lumbar vertebrae.

Another desirable feature, I believe, is that spinal anesthesia lowers the blood pressure to a certain degree, not only at the time of operation, but for a time following it; and in spite of the various means that have been devised to control bleeding following prostatectomy, we still depend, to a large degree, in most cases, on Nature's spontaneous closure of torn vessels, more easily secured when the blood pressure is not too high. Sometimes, this drop in blood pressure is very marked and, I suppose, accounts for some of the faintness that we meet in mildly toxic cases. In one instance, we noted the blood pressure fall from 140 to 40 in a short time. In patients with impaired renal function, it is also an advantage to be able to begin giving water by mouth immediately on the patient's return to bed. The allowance of time that one has with spinal anesthesia is, I believe, an advantage. Once the anesthesia has been secured, one has from an hour to an hour and a half of anesthesia without any additional risk to the patient. One can work with all necessary deliberation, and I believe this is often of great importance, as, for instance, in the careful control of bleeding. It permits the more careful attention to many of the little niceties which one would ordinarily omit if it required a prolongation of an inhalation anesthesia. A further advantage of spinal anesthesia is that it may be used in prostatic patients suffering from diabetes. There were six in this list of prostatectomies, all of whom recovered. This, of course, is not a very important feature, as the number of patients with this combination is relatively small.

In spite of what seems to me to be the great advantage of spinal anesthesia in a considerable proportion of our cases of prostatectomy, so far as one may be allowed to judge from conversation with various men, this method is used in but a small percentage of such operations, and is not used, I believe, because of unwarranted prejudice against it. This prejudice against spinal anesthesia is based, I believe, on its supposed dangers to life, on the occasional inefficient anesthesia that results and on what are believed to be its undesirable effects, both immediate and late. I have been interested to review the cases of prostatectomy in which I have employed spinal anesthesia, particularly as regards its danger to life, its efficiency, and its complications. The number of prostatectomies in which I have used spinal anesthesia has not been very large, 328 cases; but they have the advantage of having been performed by one person under similar conditions. In the present paper, I shall simply consider the subject from its clinical aspects.

DANGERS FROM SPINAL ANESTHESIA

As regards the danger to life from spinal anesthesia, I have seen no one die from the effects of it. Its use in my hands has by no means been limited to the 328 cases that I report here since I have used it many times for painful cystoscopy, perineal section for stricture, and for operations in cases of extravasation of urine, etc. It is true that there have been a certain number of unpleasant and disquieting incidents among

* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

these cases, partly due, no doubt, to the fact that we were at first unfamiliar with its use. One may say of spinal anesthesia that the disagreeable incidents attendant on its use come at the time of operation; at the time when every one is present so that there is ample opportunity to render aid. I shall come back to this phase of the subject and consider it more in detail.

When one considers the efficiency of the anesthesia in these 328 cases, I find that in 293 of these cases the anesthesia was regarded as satisfactory and in most instances was spoken of in my notes as "good," "perfect" or "excellent." In a few of these, however, it was recorded as "fair." In eighteen of the remaining cases, no mention was made of the degree of anesthesia. I believe it is reasonable to suppose that in these eighteen cases there was at least a fair degree of anesthesia or some reference would have been made to the lack of it in the notes made at the time of operation. In twenty-four of the 328 cases, the spinal anesthesia was supplemented by gas or ether. In most of these cases, this was what I have heard termed "psychic ether," that is, the mere smell of ether by making the patient believe he was having ether, was sufficient to relieve the pain of which he complained. In most of these cases, it was perfectly evident that the anesthesia had been good, that it was simply the imagination of the patient which led him to complain. Ordinarily if, in the case of a second stage prostate operation, one can pinch the skin of the abdomen with forceps at the height of the suprapubic opening without causing pain, one may be perfectly sure that the bladder outlet is anesthetized. Other things that point to a good anesthesia are relaxation of the abdominal wall and, especially, relaxation of the rectal sphincter. You may have all these signs of an efficient anesthetic and yet have a neurotic patient who will complain bitterly of pain. It will often be found that a few drops of ether, just enough to give the odor, will afford relief in such cases. The pressure on the abdomen felt by patients with a good spinal anesthesia and which they often resent, must not be confused with real pain. It is, to many, a disagreeable sensation, but far removed from real pain.

Fig. 2.—Pinching a fold of skin at the level of the suprapubic fistula as a test for anesthesia.

There are a few patients who are not anesthetized following a spinal injection; the condition is ordinarily perfectly evident. There is no numbness or tingling of the feet, no blunting of the sensitiveness of the skin of the abdomen to a needle prick, or to pinching with forceps. These patients may receive a second injection after ten minutes. I have found, in my records, reports of seven cases of reinjection because of no anesthesia. So far as I could ascertain these patients all had good anesthesia after reinjection. As a whole, patients who have a reasonable amount of self-control do very well under spinal anesthesia. Those who have little self-control, or who are prejudiced against this method of anesthesia, are likely to complain bitterly no matter what sort of anesthesia one secures. They are quite unable to grasp the possibility of the blunting of painful sensations without the doing away of consciousness.

TOXIC CONDITIONS

The disagreeable and troublesome conditions that occasionally arise during spinal anesthesia may be considered under the heading of toxic conditions. In the mildest type of toxicity, the patient is slightly blanched, or he may be a little faint or nauseated, or he may vomit. A condition of this sort is not very uncommon and need not be the cause of alarm. It is difficult to say just how often we meet this slight toxicity, but I believe it has occurred in about 20 per cent. of the cases. In the more severe toxic conditions, of which one sees a relatively small number—I found reference to six or seven in this series of cases—there is usually difficulty with respiration. The respirations may drop to from 8 to 10 a minute. This is usually attended with a certain amount of cyanosis, sighing or stertor. Usually, carbon dioxid stimulation, which is obtained by letting the patient rebreathe air from a closed inhaler, overcomes this condition within a short time. Lip friction may be of use. Once or twice we have employed artificial respiration for a short time. This we had to resort to more often when we were less accustomed to this type of anesthesia. I do not remember having resorted to artificial respiration for a number of years. In this condition, we usually use aromatic spirits of ammonia and occasionally a little strychnin or carbohydrate oil, sucutaneously. Besides the respiratory troubles, in the more severe toxic cases, there may be a lapse of consciousness or even a slight convulsive attack. It seems to me that the patient's mental attitude acts as an important predisposing factor in cases of this sort. My worst patients have been physicians, almost without exception; persons in whom there has been a considerable element of dread. One such patient had a slight convulsion on the table and lapsed into unconsciousness. His pulse remained fair, however, and by the end of the operation, his condition gave us no concern whatsoever. He made a perfect recovery. Another physician lapsed into unconsciousness, although he had no convulsive seizures. This man had such a bad heart that it had been a question whether any surgical procedure be tried. Though he was in very poor condition at the end of operation, he had a perfectly good convalescence. At times, the heart becomes very rapid, but no more so, I believe, than it does at times with inhalation anesthesia.

V. 19

Besides these disturbances that come at the time of operation, there is an annoying complication that is occasionally seen at a later time, the spinal headache. I find a record of relatively few spinal headaches, only ten. However, it is possible that all have not been noted, since I find that my records of operation are much more carefully written up than my records of convalescence. Such instances of headache as I have seen have rarely persisted longer than a week, and I believe never more than two weeks. The patient notices this headache only when he is sitting up, almost never when he is lying down. Lying down gives very prompt relief even to the patients who suffer considerably when sitting up. I have seen nothing to indicate any infection of the meninges.

I have never seen any lasting interference with either sensation or motion that it seemed to me fair to attribute to spinal anesthesia. I had one man who said he could neither hear nor talk, but that lasted only a short time.

In performing surgical operations on old people, we see certain conditions develop that the patients are inclined to attribute to the operation but which we have every reason to believe bear no relation to it. Thus, I have seen men who evidently had a beginning Dupuytren's contraction, or perhaps one would better say a predisposition to this condition, develop quite a marked contraction during convalescence. I have seen this following spinal anesthesia as I have seen it following inhalation anesthesia. It seems to me that it bears no relation whatsoever to the operation or to the anesthesia, but is the result of the lack of use of the hand during convalescence. Likewise, I have seen several people who had a marked arthritis of the spine, who became stiff during a long surgical convalescence. I should say that I have seen this happen quite as often under inhalation anesthesia as under spinal; but the patient, perhaps not unnaturally, is inclined to attribute it to the use of spinal anesthesia. If such a patient has the misfortune to have a general practitioner of rather limited outlook he may coincide with the patient in this view. Another annoyance that I have seen follow operation, under both inhalation and spinal anesthesia, is a certain numbness in the fingers supplied by the ulnar nerve. This is due, I believe, to some constrained position in which the patient lay, not necessarily during operation. I have seen it in a certain number of prostatic cases following spinal anesthesia. I have no explanation to offer; but I do not believe that it can be due to the anesthesia.

TECHNIC EMPLOYED

A short description of the technic that I have used in spinal anesthesia may be of interest. We have made use of tropacocain, procain and apothesin as an anesthetic, all in combination with epinephrin. It has ordinarily been given in the lumbar spine, sometimes in the space between the second and third lumbar vertebae, but preferably in the space between the third and fourth lumbar vertebrae. A line connecting the highest points of the crests of the ilia crosses the fourth space, which is the next below this. So one feels for the space that is on this line, connecting the crests of the ilia, and then makes the puncture in the space next above it. I make the injection with the patient sitting across the table, the feet in a chair, the back bowed forward and slightly inclined from the hips. The head should be sharply flexed so that the chin touches the sternum. The ordinary lumbar puncture needle, with a rather short bevel, is inserted in the median line. Usually, it enters the spinal cavity without difficulty. In exceptional cases it may be impossible to get the needle into the spinal cavity. There were three cases, of which I found record, in which it was impossible to give spinal anesthesia because of ankylosis of the spine and consequent inability to enter the vertebral canal. It is not infrequent to have to make two or more attempts in a difficult spine before entering the vertebral canal. We ordinarily use 2 c.c. of a 5 per cent. procain solution or a similar amount of whatever drug one is using, which is then diluted with aspirated spinal fluid to make 5 c.c. One then makes sure that the cannula is still in the vertebral canal, after which he injects slowly, taking from ten to thirty seconds to inject 5 c.c. The patient is allowed to remain in the sitting position for from one to two minutes and then is allowed to lie down, with his head and shoulders a little raised. The anesthesia ordinarily takes place within two or three minutes. Occasionally, a perfectly good anesthesia will be delayed as much as ten minutes. If for any reason one wishes to give spinal anesthesia with the patient lying on his side, with his head and shoulders slightly raised, he may do so. However, in my experience, it is easier to give it in the position first described. Although I wish to keep the patient's head somewhat elevated for a few minutes following injection, I do not hesitate to put him in the lithotomy position as soon as I let him lie down (from one to two minutes after injection). After from fifteen to twenty minutes, I do not hesitate to use the exaggerated lithotomy position. In reviewing my notes I have found records of twenty-two cases of perineal prostatectomy which has been performed under spinal anesthesia without the occurrence of any mishap. In these cases, I employed the exaggerated lithotomy position.

CONCLUSIONS

My experience with the 328 cases of prostatectomy performed under spinal anesthesia leads me to believe that the method is a safe one as regards danger to life. It is efficient in a large proportion of cases; in only slightly more than 7 per cent. of these was it necessary to supplement the anesthesia with gas or ether. In a considerable number of these cases the gas or ether was given because of the mental instability of the patient rather than because of the physical suffering. There are a number of minor annoyances attended with its use, most of which are really of no more importance than the little difficulties we meet daily in the use of inhalation anesthesia. There are some toxic symptoms that are quite terrifying; but they seem to do no serious harm. I have failed to find among my patients any evidence of lasting injury caused by spinal anesthesia.

It is my opinion that the lessened injury to the kidney as a result of spinal anesthesia more than compensates for its drawbacks, and makes it the best anesthetic for use in a considerable proportion of cases of prostatectomy. The time that spinal anesthesia allows for operation is a considerable advantage since it permits more careful work. It spares the heart more than inhalation anesthesia, as ordinarily given, and it is of the greatest value in carrying out prostatectomy safely in diabetics.

352 Marborough Street.

ABSTRACT OF DISCUSSION

Dr. Bransford Lewis, St. Louis: I have such respect for Dr. Chute and his conclusions and such confidence in them that I feel reluctant to express an opinion in opposition to his conclusions. Yet certain facts about spinal anesthesia have made such an impression on me that I feel one should not neglect to bring up an argument in opposition if he feels so disposed. I have no doubt that if I had behind me the experience Dr. Chute has had, I would stand by my convicitions and argue as he does. But I have no such experience, and, on the contrary, I have facing me the knowledge of a striking number of deaths directly due to spinal anesthesia and I am terrified at its significance. In the early period when Jonnesco and others were introducing this method in this country, we grew enthusiastic about it. A number of leading surgeons used spinal anesthesia here, and death ensued in four or five such cases. When patients do not die, as Dr. Chute says, the result is almost ideal. But in its liability to cause death spinal anesthesia is far from ideal. We know that many who formerly were enthusiastic about the utility and safety of spinal anesthesia have abandoned it because of the mortality. On the other hand, must we resort to a method in these advanced states of debility and low vitality that has attached to it this stigma that cannot be denied, this high mortality? I believe not. We can use with the utmost safety and satisfaction for the first stage of the suprapubic prostatectomy an infiltration anesthesia, which has no mortality. I have never heard of a patient dying through infiltration anesthesia and opening the bladder in the first stage. For the second stage, we have sacral anesthesia, which has no mortality. I have heard of some toxic symptoms following sacral anesthesia, but know of no deaths. Authors who have written on this subject have not reported any mortality. Sacral anesthesia in about 10 per cent. of the cases is a failure, and then either gas or a light degree of ether anesthesia has to be added. That places this method of practical safety in contrast with this one, with a pronounced mortality, which is the gist of the situation.

Dr. A. J. Crowell, Charlotte, N. C.: Dr. Cecil's modification of Young's operation simplifies the operation very much as it makes use of a guide and tractor combined. It greatly lessens the danger of getting into the rectum and makes the preservation of the membranous urethra much easier. I am glad to see this revival of interest in the perineal operation and feel sure it will result in great good. The pendulum has swung entirely too far to the suprapubic operation. With regard to spinal anesthesia, I have never been sufficiently brave to try it. My timidity may be the explanation, but I have seen some work under its influence that made me tremble. With the modifications of Young's operation recommended by Drs. Cecil and Geraghty, combined with sacral anesthesia, I believe we will do more perineal prostatectomies in the future. Since last July I have done all prostatectomies under sacral anesthesia. In some of these cases, while enucleating the prostate from its capsule, it was necessary to give a little gas for a few moments, but the perineal anesthesia is so complete that the wound is closed and dressed after the patient wakes up, free from pain. This is probably necessary in 12 or 15 per cent. of the cases.

Dr. H. W. E. Walther, New Orleans: Spinal anesthesia has failed to give me anesthesia in about 50 per cent. of the injections. I do not know the reason for this. I follow the directions Dr. Chute mentioned, get spinal fluid and enter the canal, but fail to get anesthesia. In the after-effects of spinal injections, Dr. Chute did not mention headache. I have seen headaches which lasted for three weeks following spinal anesthesia and nothing has relieved the headache. As to mortality, I have seen deaths from no other anesthetic but the spinal. I have noticed in the writings of a confrere who does much work under spinal anesthesia that he maintains he has never had a death; but he must have a very short memory, for I have seen at least three deaths in his service in the last five years. It certainly is an anesthetic that is very satisfactory when it works; but these deaths on the operating table, before we begin work, are hard to explain. Experience seems to bear out the fact that spinal anesthesia is the most dangerous of all.

Dr. A. Raymond Stevens, New York: I have always been enthusiastic over spinal anesthesia, the injection being made in the low lumbar region. At Bellevue Hospital, we have been using it a great deal since the war for perineal work of all sorts. Dr. Keyes was not keen about spinal anesthesia five or six years ago, when stovain was used. Since the war he has sanctioned its use in a more or less routine way. I have no figures, but it has been used chiefly for perineal work and difficult cystoscopies. We use just one half the amount of procain that Dr. Chute uses. We have had no death on the table. The only death (I think I am correct though speaking from memory), occurred about four hours after operation. In this case, the patient was operated on by someone else on the service and I do not know all the circumstances, but we charged the death to the spinal anesthesia.

Dr. Arthur L. Chute, Boston: What Dr. Stevens says about Dr. Keyes making use of spinal anesthesia is very encouraging since he is one of the irreconcilables on whom I have been exerting all my missionary efforts for years. If he has come around even the least bit, it is a great sign of hope. In our work, we have the patient sit on the side of the table bending forward, with his chin resting on his sternum. I admit that there have undoubtedly been deaths, but I have never seen one. Like many other things, spinal anesthesia must be given properly to be safe and efficient. One cannot do a perineal prostatectomy without having a considerable amount of definite knowledge; no more can one give spinal anesthesia without some knowledge of it. It is not a thing one can do offhand, but when one has learned its technic, it has great possibilities. We speak of the dangers of spinal anesthesia as though inhalation anesthesia was without danger in these cases, while as a matter of fact I believe that the patients who die following prostatectomy die chiefly as the result of inhalation anesthesia. It is often said that patients die of hemorrhage the third or fourth day after operation; they do not. They die the day of the operation. The patient who dies three or four days after operation dies because his kidneys have shut down, in many cases, because of the inhalation anesthesia. These patients almost never die if they are getting an output of 100 ounces or more of urine. I cannot conceive of an agent as powerful as spinal anesthesia not having possibilities for harm, even leading to a fatal outcome at times though I have not as yet seen a fatal case. Against this disadvantage of spinal anesthesia, you must balance the insidious danger that general anesthesia often brings to these patients through its action on the kidneys. Dr. Lewis and Dr. Walther have spoken of the sacral method. Many of these patients were operated on before sacral anesthesia was known to me and I think it is possible that the sacral method may do away with spinal anesthesia to a great extent, but I do not think this is assured. Dr. Walther's failure in 50 per cent. of his cases, I cannot understand. I have no explanation to offer. Evidently, I have not seen as bad headaches as he has. I think, however, he misunderstood me if he thought I intended to minimize the importance of the spinal headache. It may be serious as regards the patient's comfort, but so far as I know, as soon as the patient lies down, he becomes fairly comfortable, and here, again, it is balancing one thing against another. Certainly, the life of the man with spinal headache, following prostatectomy, is in less danger than is that of the man whose kidneys have shut down after inhalation anesthesia.

Cost of Research Work in England.—The report of the British Scientific and Industrial Research Department for the year ending, July 31, 1921, states that the total expenditure of the department during the financial year was £525,584 (approximately $2,500,000). For the current year, the cost is estimated at £342,641, nearly £85,000 less than the previous year. About £40,000 of this reduction is accounted for by the government decision that research work undertaken directly for the Army and Navy at the National Physical Laboratory shall be charged to those departments and not to the research department.

PRESUMPTIVE TEST FOR THE ETIOLOGIC FACTOR IN BACTERIAL FOOD POISONING *

VICTOR BURKE, PH.D.
AND
CHARLES W. MAY, B.S.
PULLMAN, WASH.

The causes of food poisoning may be roughly classified into four groups as regards diagnosis: (1) bacterial toxins; (2) organisms of the paratyphoid-enteritidis group; (3) ptomains and naturally poisonous foods, such as the toadstools, and (4) chemical poisons, consisting mainly of the poisonous metals.

These groups vary in their resistance to heat, oxidizing agents, disinfectants, acids and antitoxins. They also vary in the severity of the disease, time of appearance, and nature of the symptoms produced. By utilizing these differences it is possible in many cases, when the suspected food is available, to make a more rapid and accurate diagnosis than when one depends solely on the clinical symptoms exhibited by the patient.

The present article is the result of an attempt to develop a rapid test for the etiologic factor in bacterial food poisoning, of such a practical nature as to be readily applied by the practicing physician lacking access to a diagnostic laboratory. The test here described consists of a rapid, confirmed test for the toxin of *Clostridium botulinum (B. botulinus)* combined with a slower presumptive test for organisms of the paratyphoid-enteritidis group. There is also described a rapid presumptive test for the presence of botulinus toxin which may be used when botulinus antitoxin is not available. The application of this test in a recent outbreak of botulism, with the resulting diagnosis and case history, is included.

In food poisoning outbreaks due to botulinus toxin, a rapid diagnosis is desirable. It has been well established that the antitoxin treatment, to be effective, must be begun early. The experimental evidence indicates that this treatment is of little value if begun some time after the symptoms appear, particularly if the patient has received more than one lethal dose of toxin.[1]

A rapid diagnosis in food infections is not so important. The death rate is low, and there is no specific treatment and no danger of an epidemic.

The main differential characteristics of the food poisoning groups enumerated are as follows:

1. *Bacterial Toxins That Are Toxic When Ingested.*—The botulinus toxins are the only bacterial toxins reported as causing outbreaks of food poisoning. Recently Bengtson [2] has reported on a toxin produced by an unclassified anaerobe. Whether or not the toxin of this organism ever causes food poisoning remains to be determined. Botulinus toxin is easily destroyed by heat, or neutralized by its specific antitoxin. It is not destroyed by exposure to a small amount of hydrochloric acid or sodium bicarbonate. The spores of *Clostridium botulinum* are very resistant to heat, but the ingestion or injection of a small number of toxin-free spores does not result in botulism. These toxins are usually associated with poisoning due to the eating of preserved foods, but they are occasionally found in comparatively fresh foods, such as cottage cheese. The clinical symptoms produced by botulinus toxins are distinct.

2. *Organisms of the Paratyphoid-Enteritidis Group.*—The organisms of this group cause outbreaks of food poisoning or, more properly, food infections. These organisms are normally associated with animals and secondarily infect man. They are readily destroyed by heat and disinfectants. The endotoxins which are produced resist heat, hydrochloric acid and sodium bicarbonate in small amounts. The virulence of these organisms for rabbits and the strength of the endotoxin produced varies. Freshly isolated strains are more virulent than laboratory strains. It is this variability in virulence and endotoxin production that limits the test described in this article to a presumptive test for these organisms. It fails to detect the organisms not pathogenic for rabbits. Food poisoning due to the organisms of this group is usually associated with the eating of contaminated fresh foods, such as milk and meat, either raw or poorly cooked, or contaminated after the cooking, and not to decomposed foods as in botulism. The organisms do not thrive in fruit juices. The clinical symptoms produced by these organisms and their endotoxins are characteristic, though variable in severity.

Other gram-negative organisms, such as *B. proteus*, have been recorded as causing outbreaks of food poisoning. However, the belief is becoming prevalent that practically all food infections are due to the organisms of the Gaertner-Salmonella group.

3. *Ptomains.*—Food poisoning due to ptomains is now believed to be rare and of a very mild nature. Ptomains cannot be considered a confusing factor in diagnosis. The use of the diagnostic term "ptomain poisoning" indicates a lack of knowledge or exact information. Ptomains and the poisonous factors in naturally poisonous foods, such as toadstools, are heat resistant and not altered by slight amounts of acid or alkali. The possibility of the patient's suffering from the naturally poisonous foods must be determined by the probability of his having partaken of such foods.

4. *Chemical Poisons.*—These occasionally cause outbreaks of food poisoning attributed to bacteria. Chemical poisons are many, and serve as a confusing factor in diagnosis. The symptoms produced in man and in laboratory animals may or may not indicate the correct diagnosis. Methods of diagnosing these poisons do not come within the scope of this paper.

Following a recent outbreak of food poisoning at Walla Walla, Washington, a jar of asparagus and a dead chicken were sent to the laboratory for examination. The test used to identify the factor causing the poisoning is as follows:

In testing to determine the presence and nature of the poisonous substance in a jar of canned asparagus, 2 c.c. of the unfiltered asparagus liquor was placed in each of five serum tubes. To the asparagus juice in the second tube was added 1 c.c. of Type A botulinus antitoxin. To the third tube was added 1 c.c. of Type B botulinus antitoxin. The fourth tube was placed in boiling water for ten minutes. To the fifth tube was added 0.5 c.c. of a 10 per cent. solution of hydrochloric acid, which was allowed to stand ten

* From the Laboratory of Bacteriology, State College of Washington.

1. Dickson, E. C., and Howitt, B. M.: Botulism: A Preliminary Report of a Study of the Antitoxins of B. Botulinus, J. A. M. A. **74**: 718 (March) 1920. Burke, Victor; Elder, J. C., and Pischel, Dohrman: Treatment in Botulism, Arch. Int. Med. **27**: 265 (March) 1921.

2. Bengtson, I. A.: Preliminary Report on a Toxin-Producing Anaerobe Isolated from the Larvae of Lucilia Caesar, Pub. Health Rep. **37**: 164 (Jan. 27) 1922.

minutes. The contents of all five tubes were then neutralized to litmus with a saturated solution of sodium bicarbonate. The contents of each tube were then injected into the marginal ear vein of a medium size rabbit. The results obtained indicate that the asparagus contained a botulinus Type A toxin.

The test was repeated with a ten day culture of the crop and intestine of the chicken. The results obtained were the same except that Rabbits 1, 3 and 5 showed symptoms of poisoning in an hour and a half, and died in from two to three hours.

TABLE 1.—RESULTS OF A TEST ON ASPARAGUS LIQUOR TO IDENTIFY THE FOOD POISONING FACTOR

Rabbit	Asparagus Liquor, C.c.	Procedure	Result
1	2	Control*	Dead in from five to six hours
2	2	1 c.c. of Type A botulinus antitoxin*	Lived
3	2	1 c.c. of Type B botulinus antitoxin*	Dead in from five to six hours
4	2	Placed in boiling water for ten minutes*	Lived
5	2	0.5 c.c. of 10 per cent. hydrochloric acid, allowed to stand ten minutes*	Dead in from five to six hours

* Neutralized to litmus with a saturated solution of sodium bicarbonate just before injection.

In an experiment to determine what results will be obtained with food containing organisms of the paratyphoid-enteritidis group when subjected to this test, the foregoing test was repeated in detail except that a forty-eight hour culture of *B. paratyphosus* B was substituted for the asparagus juice. The results obtained are given in Table 2.

This experiment was repeated with seven other laboratory strains of *B. paratyphosus* B, *B. enteritidis* and *B. suipestifer*, grown in milk and meat mediums. Some of the strains were not virulent, and the rabbits failed to develop symptoms. The results obtained with the virulent strains varied as regards time of appearance of symptoms and death, but were comparable to

TABLE 2.—RESULTS OF TEST WITH B. PARATYPHOSUS B

Rabbit	Paratyphoid B 18 Hour Culture C.c.	Procedure	Results: Symptoms, Hours	Results: Death, Hours
1	2	Control*	12	35
2	2	1 c.c. of Type A botulinus antitoxin*	12	28
3	2	1 c.c. of Type B botulinus antitoxin*	12	22
4	2	Placed in boiling water ten minutes*	2	Lived
5	2	0.5 c.c. of 10 per cent. hydrochloric acid, allowed to stand ten minutes*	2	Lived

* Neutralized to litmus with a saturated sodium bicarbonate solution before injection.

the results given in Table 2, with the exception that occasionally Rabbit 5 died. Apparently the acid releases more of the endotoxin than heat, or increases its action in some other way. Controls on Rabbit 5 showed no symptoms.[3]

The results obtained in Experiment 2 indicate that members of the paratyphoid-enteritidis group are frequently infectious for rabbits when injected intravenously, and that they produce an endotoxin not destroyed by exposure to a boiling temperature for a short time or to a weak solution of hydrochloric acid. It is reasonable to assume from reported data on the organisms of the group that the results obtained with strains in nature will be more uniform, i. e., that freshly isolated strains, or strains in contaminated food, will be more uniformly pathogenic for rabbits. However, there are strains capable of causing infections in man but not in rabbits. For this reason the test for these organisms must remain presumptive.

The results obtained in this experiment (Table 2) offer conclusive evidence that botulinus toxin was not present. Results similar to these, if obtained following the injection of food suspected of causing an outbreak of poisoning, may be considered as presumptive evidence that the poisoning was due to a member of the paratyphoid group. Necropsy findings in the rabbits, together with cultures from the heart blood, and the clinical symptoms of the patient, will confirm or discredit this diagnosis. If the rabbits show no symptoms, botulinus toxin is eliminated, but not the members of the paratyphoid group.

Ordinarily it is not necessary to filter food juice before injection intravenously in rabbits. Finely divided particles that will pass through the needle do not affect rabbits. Air bubbles should not be injected, or embolism may result. In testing solid foods, it may be necessary to resort to trituration and extraction with physiologic sodium chlorid solution.

The amount of suspected fluid to be injected is subject to variation. We have chosen 2 c.c. as a suitable amount. Rabbits will withstand the injection of much larger amounts of nontoxic fluids without showing symptoms. Rabbits are very susceptible to intravenous injections of botulinus toxin. Two cubic centimeters of juice from foods having sufficient botulinus toxin to cause an outbreak of food poisoning will kill a rabbit. When foods have to be triturated or extracted to obtain the fluid for injection, the least amount of salt solution used, the stronger will be the toxin. Under such circumstances the injection of more or less than 2 c.c. of fluid may be advisable. In cases in which there is a suspicion of food infection, centrifuging to concentrate the organisms may be an advantage.

The acidity of some foods is so great that unless it is neutralized the rabbits will react to the acid. Neutralization must be brought about by an alkali that does not affect the toxin or organism present. Neutralization to litmus with a saturated solution of sodium bicarbonate is satisfactory. There should not be an excess of alkali. If food normally acid is strongly alkaline, the cause should be determined as possibly offering a clue to the cause of the poisoning.

The time required for the test to be completed will vary with the nature of the substance causing the poisoning and the amount injected. This test, applied to the can of asparagus from Walla Walla, was completed in six hours. When applied to a 3 weeks old culture from the crop and intestines of a chicken from the same case, the test was completed in three hours. With food containing botulinus toxin, the test will ordinarily be completed in a few hours. Symptoms from botulinus toxin will not appear in less than one to two hours or later than twenty-four hours. Consequently, if the rabbit shows no symptoms in twenty-four hours, we can assume that the suspected food does not contain botulinus toxin.

3. Several rabbits were injected with 2 c.c. of sterile milk to which was added 0.5 c.c. of 10 per cent. hydrochloric acid, which was then neutralized with the sodium bicarbonate solution. None of these rabbits died.

No general statement can be made to cover the time required to complete the test if the organisms of the paratyphoid group are present. With a highly virulent strain, the test will be completed in twenty-four hours or less. With less virulent strains, a longer time is required. With virulent strains, one can, by comparing the time of appearance of symptoms in the different rabbits, make a preliminary diagnosis in a few hours. If Rabbits 4 or 5 show symptoms in a few hours, and Rabbits 1, 2 and 3 do not show symptoms for twelve hours or more, the evidence is in favor of paratyphoid organisms being present, and botulinus toxin is eliminated. If the organisms are of low virulence, Rabbits 1, 2 and 3 may not die for several days, or not at all. In general, the test for botulinus toxin and members of the paratyphoid group will be completed in twenty-four hours or less. At the end of twenty-four hours a negative test for botulinus toxin is conclusive, but a negative test for paratyphoid, as is true of negative tests for certain other bacteria, is not conclusive.

The possibility of large numbers of nonpathogenic organisms or their endotoxins and proteolytic products being a confusing factor must be considered. Rabbits resist the intravenous injection of large numbers of saprophytic bacteria and their products, and also nonpathogenic strains of *Staphylococcus aureus* and *B. coli*. We doubt whether such organisms are ever found in foods in sufficient numbers to affect the rabbits. If rabbits show symptoms following the injection of food juices as given for this test, the food should be considered poisonous or infectious for man.

We have selected rabbits instead of other animals for this test because they are always available to the practicing physician. Intravenous injections are recommended because the symptoms appear more quickly, and smaller amounts of the suspected food will suffice for the test.

The test should be made with the suspected food, if any is available. In case none of the food can be obtained, the empty container may be washed with a small amount of salt solution, and this injected. In testing dry foods, extracts should be made with salt solution. If neither the food nor a container is available, the vomitus or stomach contents or the blood may be used. The value of the test is greatly reduced, and may be negligible if the food is not available.

INTERPRETATION OF RESULTS

In interpreting the results obtained with the test, it must be borne in mind that this is presented as a presumptive test to be used by physicians or technicians to whom the facilities of a large, well equipped laboratory are not available. With a well equipped laboratory available, the test can be modified, as will be described later. The following will serve as an aid in the interpretation of results:

If there is no history of preserved food having been eaten, botulism may be excluded from consideration. Preserved foods include not only canned foods but also the foods preserved in various ways and kept for several days. Dried fruits and vegetables have never given rise to botulism. With the exclusion of botulism, attention should be directed to fresh meats and milk as possibly contaminated with organisms of the paratyphoid group. The possibility of the outbreak's being due to mushroom poisoning or to poisonous chemicals must be determined both by the clinical symptoms of the patient and by the probability of such substance's having been ingested.

1. If Type A botulinus toxin is present, Rabbits 1, 3 and 5 will die, usually within a few hours. Rabbit 4 will not die from the injection of botulinus spores that may be present.

2. If Type B botulinus toxin is present, Rabbits 1, 2 and 5 will die within a few hours.

3. If both types of botulinus toxin are present, Rabbits 1, 2, 3 and 5 will die. The possibility of both types of botulinus toxin being present must be considered, but we have no record of such an occurrence in outbreaks of food poisoning.

4. If organisms of the paratyphoid-enteritidis group are present, no hard and fast rule can be laid down for the interpretation of results. The organisms vary in their virulence for rabbits and endotoxin production. The endotoxins are produced in variable amounts, and are heat resistant. In most cases we may expect that Rabbits 1, 2 and 3 will die. Death may occur in from ten to twelve hours, or may be delayed for several days. Mild symptoms may appear in a few hours, owing to endotoxins present, followed by a return to a normal condition with a later development of symptoms as an infection develops. Rabbits 4 and 5 will show symptoms in from one to four hours, and show evidence of recovery in twenty-four hours. They may appear normal in from six to twelve hours. Rabbit 5 will occasionally die. The acid treatment seems to increase the toxicity of the food more than the heat treatment. The rapid appearance of symptoms or more severe symptoms in Rabbits 4 and 5, with a later appearance of symptoms, or of less pronounced symptoms, in Rabbits 1, 2 and 3, suggests the presence of paratyphoid organisms. The recovery of Rabbit 4 and the death of 1, 2 and 3 strengthens this diagnosis. The symptoms exhibited by Rabbits 4 and 5 consist mainly of great prostration, with more or less watering of the eyes. The symptoms in Rabbits 1, 2 and 3 consist of prostration, watering of the eyes, diarrhea and rapid emaciation. At necropsy there is found a congestion of the intestine, particularly around Peyer's patches, and occasionally hemorrhagic exudations. Blood cultures will contain a typical gram-negative bacillus. The symptoms exhibited by rabbits suffering from botulinus toxin are distinct and not readily confused with the foregoing. There is great muscular weakness. The hind quarters are drawn well forward. There is evidence of a disturbance of equilibrium and difficulty in breathing. At necropsy Peyer's patches are not found congested. There is no diarrhea.

5. If none of the rabbits show symptoms, botulinus toxin is eliminated, but not the paratyphoid organisms. The nonappearance of symptoms in the rabbits does not prove that the food is nontoxic for man. As previously stated, the virulence of the paratyphoid organisms for man and rabbits may vary. A strain of these organisms may affect man and not rabbits. Also other poisonous substances may be present in the food in sufficient amount to affect man and not produce symptoms in the rabbits.

6. If all the rabbits show symptoms, botulinus toxin is excluded, but not the paratyphoid organisms. If the symptoms are due to the paratyphoid organisms, the time of appearance and severity of the symptoms and the ultimate fate in the case of Rabbits 4 and 5 will usually differ from those in Rabbits 1, 2 and 3.

7. If some of the rabbits show symptoms and others do not, the naturally poisonous foods and poisonous metals not affected by heat, acid or alkali are excluded

from consideration. Acids are excluded because of the neutralization with sodium bicarbonate. Botulinus toxin and infectious organisms must be considered.

8. If Rabbit 4 shows symptoms, botulinus toxin is eliminated from consideration. This toxin is destroyed by heat. The spores will not be in sufficient numbers to affect the rabbit.[4] It has been shown that massive doses of a botulinus toxic filtrate will kill mice in a few minutes, even though the mice have been immunized to the toxin.[5] This toxic effect has been attributed to ammonia salts.[6] In intravenous injections, the possibility of symptoms or death being due to acid or protein shock must also be considered. Our experience in injecting many rabbits has been that ammonia salts or other proteolytic products likely to be present in contaminated food will not affect the rabbits and interfere with this test. With our present knowledge we are justified in stating that if Rabbit 4 shows symptoms the food is toxic to man because of some substance other than botulinus toxin.

9. If Rabbit 5 dies, the poisonous substance resists the acid as used in the test. The paratyphoid organisms are destroyed, but not their endotoxins or the toxins of *Clostridium botulinum*. The results obtained with Rabbit 5 are of value as a check on the results obtained with the other rabbits, and particularly as a check on the possible presence of both types of botulinus toxin. If a monovalent botulinus toxin is present, the results obtained with Rabbit 5 will closely resemble the results obtained with Rabbit 1 and either Rabbit 2 or Rabbit 3. If a polyvalent botulinus toxin is present, the history of Rabbit 5 will closely resemble that of Rabbits 1, 2 and 3. If the paratyphoid toxins are present, the history of Rabbit 5 will closely resemble that of 4, the symptoms occasionally being more severe and resulting in death.

In general, it may be stated that if Rabbits 1, 2 and 3 die, and Rabbit 4 lives, the presumption is that an infectious organism is present. What happens to Rabbit 5, combined with a comparison of clinical symptoms, will largely confirm or discredit this diagnosis. If Rabbit 5 lives, this diagnosis is strengthened.

The clinical symptoms exhibited by the rabbits and the patients serve as an aid in diagnosis. The symptoms in botulism and paratyphoid infections in the rabbit have already been described. The symptoms in man are given later.

In analyzing this test, it is seen that it consists of a confirmed test for botulinus toxin, combined with a presumptive test for organisms of the paratyphoid group. Rabbits 1, 2 and 3 serve as a confirmed test for botulinus toxin. Rabbits 4 and 5 are added to serve as the test for the paratyphoid group and as a presumptive test for botulinus toxin. The test is only presumptive for the paratyphoid organisms because the number of organisms is uncontrolled and the virulence and endotoxic production of the different strains vary. A confirmed test for the paratyphoid organisms is simple in case the rabbits die. A necropsy of the rabbits showing congested Peyer's patches, and the recovery of a gram-negative organism from the heart blood and exudates suffice. A completed test requires fermentation and serologic tests.

4. Burke, Victor; Elder, J. C., and Pischel, Dohrman: Treatment in Botulism, Arch. Int. Med. **27**: 265 (March) 1921. Orr, P. F.: Pathogenicity of Bacillus Botulinus, J. Infect. Dis. **30**: 118 (Jan.) 1922.

5. Orr, P. F.: A Rapid Method of Determining the Presence and Type of Botulinus Toxin in Contaminated Food, J. Infect. Dis. **29**: 287 (Sept.) 1921. Bengtson, I. A.: Direct Inoculation Test for B. Botulinus Toxin, Pub. Health Rep. **36**: 1665 (July 22) 1921.

6. Bronfenbrenner, Jacques, and Schlesinger, M.: Toxicity of Botulinus Toxin by Mouth, J. A. M. A. **78**: 1519 (May 20) 1922.

RAPID, CONFIRMED TEST FOR PRESENCE AND TYPE OF BOTULINUS TOXIN IN FOOD

A confirmed test for the presence and type of botulinus toxin can be made only when the antitoxin is available. The injection of Rabbits 1, 2 and 3, as given in Table 1, constitutes such a test. Confusion may result if a polyvalent toxin is present. This possibility can be eliminated by adding both types of antitoxin to the suspected food and injecting a fourth rabbit. Since there is no record of both types of toxin ever occurring in food, the use of a fourth rabbit may be omitted. If only a polyvalent antitoxin is available, the presence but not the type of botulinus toxin can be demonstrated.

In a recent article, Orr[7] described a rapid method of detecting the presence and type of botulinus toxin in food. He recommends the injection of the suspected fluid intraperitoneally in mice. He found that the symptoms appear in from two to four hours, and that death results from one to two hours later. The weaker the toxin, the longer the incubation period. Filtration of the fluid is recommended to eliminate infectious organisms.

More recently, Bengtson[5] has recorded experiments with mice and guinea-pigs. Some of the mice died in from one to two hours following the intraperitoneal injection of large doses of botulinus toxin. She concludes that mice are more satisfactory animals with which to carry out the test, because the symptoms appear more rapidly and are more characteristic.

We have chosen rabbits for the test because these animals can be obtained under practically all conditions of general practice. Rabbits are very susceptible to botulinus toxin, and the test can be completed as quickly with rabbits as with mice. In our experiment, death occurred in from two to three hours following injection of 2 c.c. of a 3 weeks old culture of *Clostridium botulinum* toxin, Type A.

PRESUMPTIVE TEST FOR PRESENCE OF BOTULINUS TOXIN AND PARATYPHOID ORGANISMS IN FOODS

A presumptive test for the presence of botulinus toxin in the absence of antitoxin may be made by making injections in rabbits similar to those given to Rabbits 1, 4 and 5 (Table 1). If botulinus toxin is present, Rabbits 1 and 5 will die, and Rabbit 4 will show no symptoms. If virulent paratyphoid organisms are present, Rabbit 4 will show typical symptoms. Rabbit 5 will show symptoms similar to those of 4, usually more severe, and may die. If the presumptive test for botulinus toxin is positive, the antitoxin treatment should be given as soon as antitoxin can be obtained.

MODIFICATION OF THE TEST

The test, as described, has been designed to meet the needs of the general practitioner. It can be made anywhere with a minimum amount of material and equipment. The laboratory technician and research worker can readily modify the test by making use of other factors, such as filtration, polyvalent antitoxin or an oxidizing agent. Modifying the injection given one rabbit makes it possible to modify the injections given other rabbits. The interpretation of results must

7. Orr, P. F.: Rapid Method of Determining the Presence and Type of Botulinus Toxin in Contaminated Foods, J. Infect. Dis. **29**: 287 (Sept.) 1921.

vary with and depend on the injections given the different rabbits. The test presented here is as simple as the practical application permits.

THE WALLA WALLA OUTBREAK

Outbreaks of botulism have received so much publicity that new outbreaks are hardy worthy of record unless some features of the cases are of special interest. The data concerning a recent outbreak at Walla Walla, Wash., are worthy of record because they emphasize the facts that (1) the disease has not received sufficient publicity to prevent people from tasting spoiled food; (2) a cook with a defective sense of smell will fail to detect the odor of botulinus decomposition; (3) heating does not necessarily make the food safe to eat; (4) dependence should not be placed on any nonspecific treatment, and the antitoxin treatment should always be given.

Oct. 13, 1921, Mrs. E. of Walla Walla prepared some home canned asparagus for the evening meal. She was suffering with a boil in her nose, and had temporarily lost the sense of smell. The asparagus was heated before any one noticed the peculiar odor; the daughter of the patient did not believe it was boiled for more than a few minutes. Mrs. E. ate part of a stalk and a son ate a whole stalk. The family then decided that the asparagus was spoiled, and it was thrown to the chickens. Mrs. E. developed symptoms of botulism on the second day, but the son escaped illness. The son's escape can be explained by the assumpton that the asparagus he ate had been sufficiently heated to destroy the toxin. The fact that many of the chickens died indicates that little of the food had received sufficient heat to make it safe to eat. A physician was called, and a diagnosis of botulism was made on the third day. The patient died on the eighth day. Apparently she had taken but a small amount of toxin. Antitoxin was not available; this is regrettable, since it is in this type of case that antitoxin should prove to be of value. No dependence should be placed on any other treatment. Nonspecific treatment should always be resorted to, as it may delay the absorption of the toxin. Laboratory experiments indicate that a slowing down of the rate of absorption will protect an animal from several lethal doses of toxin.[8]

DETAILS OF CASE

The patient ate a small amount of asparagus, Thursday, October 13, and on Saturday noticed dizziness. She took a laxative throughout the course of the sickness so that she did not develop the usual constipation. Sunday her face was flushed, and the eyes were bright, with no increase in temperature, but she was very dizzy; the pulse was 84, full and strong; diplopia developed Sunday and lasted three days. Monday, the patient was unable to swallow milk toast. Tuesday, paralysis of the tongue, pharynx and one side of the face was noticed. Wednesday, she had several sinking spells, but never lost consciousness completely. She developed a strong odor of the breath and body. All symptoms increased, and the patient developed pain in the cardiac region. Thursday, she became weaker and was unable to keep mucus from the throat and it had to be swabbed out. Friday, the pulse was 104; the patient was very nervous and had pain in the cardiac region. Later the pulse was 122; in the evening the patient was more quiet, and seemed improved. Saturday at 1 a. m., the pulse was 150; the patient complained of a sense of weight on the chest. She died at 3 a. m. The attending physician gave paralysis of the vagus and dilatation of the heart as the cause of death.

8. Burke, Elder and Piechel (Footnote 4).

The asparagus was canned in May, 1921, by the woman who died. It had been boiled three hours. The cold pack method and city water were used. The asparagus was grown on a farm at College Place, Wash. Commercial fertilizer was used. The farmer was not at home when inquiry was made, and definite information could not be obtained. None of the original contents of the can could be secured, and the jar had been destroyed. Twenty-three chickens out of a flock of thirty-five died, six on the first day.[9]

AIDS IN DIAGNOSIS

It occasionally happens that none of the suspected food or the container is available for examination. In such cases, diagnosis must be based on information obtained from the patient, or on observation of domestic animals which have eaten the food and developed symptoms. The examination should be epidemiologic, clinical and cultural. The clinical symptoms in botulism and food infection in man are distinct. Cultures at necropsy, or of the stools of convalescents, may determine the diagnosis. Meyer and Geiger[10] recommend this procedure in botulism and describe the methods to be used. Recovery of *Clostridium botulinum* from the feces or crops or intestines of chickens which died because of spoiled food may be considered as the basis for a presumptive diagnosis of botulism. It cannot be considered a confirmed test because the organisms causing botulism occur in nature on fruits and vegetables,[11] and undoubtedly are frequently ingested and pass out with the feces. We have no record of extensive examination of normal human feces for the spores of *Clostridium botulinum*. Graham and Barger[12] examined 200 specimens of body secretions, urine and stools, from eighty cases of poliomyelitis for *C. botulinum*, and found the organism in one stool and five urine samples. The authors suggest a causal relationship between *C. botulinum* and poliomyelitis. An examination of the feces of normal persons, particularly during the summer when fresh fruits and vegetables are eaten, may give as high a percentage of positive results.[13] Similarly, the recovery of the organism from the crop and intestine of animals suffering from food poisoning should not be considered more than presumptive evidence. Chickens ingest much material that may contain *C. botulinum*. However, in all outbreaks of botulism in which both the contaminated food and affected chickens have been examined, the same type of *C. botulinum* has been found in the chicken as in the food. This might be expected in outbreaks due to home canned food when the chicken may have obtained the organism from the same source that contaminated the spoiled food. In outbreaks, however, due to commercially canned foods which are shipped long distances, we should expect occasionally to find in the chicken examined, provided the organism is a common inhabitant of the chicken intestines, a type different from that found in the food. Since we have no record of such a finding, we must conclude that the demonstration of *C. botulinum* in chickens suffering

9. I am indebted to Dr. E. L. Botts of Walla Walla for the case history and material from the outbreak, and to the daughter of the patient for additional information.

10. Meyer, K. F., and Geiger, J. C.: Some Suggestions Concerning the Bacteriological Diagnosis of Human Botulism, Am. Food J. **16**: 29-30, 1921; Pub. Health Rep. **36**: 1313 (June 10) 1921.

11. Burke, G. S.: Occurrence of Bacillus Botulinus in Nature, J. Bacteriol. **4**: 541 (Sept.) 1919.

12. Graham, R., and Barger, E.: A Note on the Presence of B. Botulinum, Type A, in the Secretions of Poliomyelitis Patients, Bull. University of Illinois **7**: 23, 1921.

13. Since this was written, the finding of Clostridium botulinum in two of ten samples of feces in normal persons has been reported by Tanner, F. W., and Dack, G. M.: Clostridium Botulinum, II. Presence in the Human Alimentary Tract, J. A. M. A. **79**: 132 (July 8) 1922.

from food poisoning associated with human cases is a strong presumptive evidence that the food contained *C. botulinum* toxin. In case nothing but an empty container is available, cultures may be made from this, resulting in a demonstration of the presence of *C. botulinum*. Paratyphoid organisms may be isolated from the food and feces or recovered in pure culture from the blood and organs at necropsy. Specific agglutinins usually appear in the blood eight days after the symptoms appear.

Botulism results from the ingestion of a specific and powerful toxin, and food infections result from the ingestion of bacilli of the paratyphoid-enteritidis group. The former represents an intoxication, and the latter an acute febrile infection. The cause, treatment and clinical symptoms in the diseases are quite distinct. The main differences are summed up in Table 3.

It is generally known that *C. botulinum* Type A produces a stronger toxin than *C. botulinum* Type B. It takes a larger amount of a culture of Type B to kill an animal than of a similar culture of Type A. Graham and Schwarze found that chickens apparently were resistant to Type B toxin, and suggest the feeding of chickens as a means of differentiating the two types of toxin.[14]

If chickens were immune to *C. botulinum* Type B toxin, this would be a confusing factor rather than an aid in the epidemiologic diagnosis of botulism. The action of suspected food on chickens has in many cases served as an aid in the diagnosis of botulism. It is obvious that if only Type A toxin affects chickens, much less reliance can be placed on the action of suspected food on chickens. There is evidence, however, that chickens are not immune to Type B toxin, and that the test for differentiating Types A and B, as presented

TABLE 3.—SUMMARY OF DIFFERENCES IN BOTULISM AND FOOD INFECTIONS

	Botulism	Food Infections
Cause	Botulinus toxin	Bacilli of the paratyphoid enteritidis group
Fever	Not characteristic; temperature usually subnormal	Characteristic; acute
Occurring	Mainly in winter	Mainly in summer
Associated with	Preserved foods	Fresh foods, or freshly contaminated foods, usually meat or milk
Condition of bowels	Constipation; rarely diarrhea	Diarrhea; offensive
Visual disturbances	Double vision; ptosis of lids	Absent
Abdominal pain	Absent	Present
Onset	Usually gradual	Sudden
Incubation period	Variable, usually from twelve hours to several days	Short, usually from six to twelve hours
Throat	Swallowing difficult	Normal
Treatment	Antitoxin	Systemic
Mortality	From 60 to 70 per cent.	From 1 to 2 per cent.

by Graham and Schwarze, is of value only when the amount of toxin is properly controlled. Hall [15] has shown that large doses of Type B toxin fed to chickens will cause death. There have been at least two outbreaks of botulism in chickens in California due to Type B toxin.[16]

In view of these facts, physicians should not depend on the action of the toxin on chickens in determining the type of antitoxin to inject in cases of botulism. The only satisfactory means of identifying an unknown toxin is by the use of an antitoxin.

CONCLUSIONS

1. Rabbits are very susceptible to intravenous injections of botulinus toxin. Because of their availability, susceptibility to paratyphoid infection as well as to botulinus toxin, and high resistance to the intravenous injection of other organism and their products, rabbits serve as satisfactory animals with which to make tests for the etiologic factor in bacterial food poisoning.

2. Specific antitoxin treatment in cases of botulism should not be based on the effect of the toxin on chickens. Type A and Type B toxin can be satisfactorily differentiated only by the use of antitoxin.

3. The test described for the etiologic factor in bacterial food poisoning consists of a rapid, confirmed test for the presence and type of botulinus toxin, combined with a presumptive test for members of the paratyphoid-enteritidis group.

4. A presumptive test for the presence of botulinus toxin may be used when antitoxin is not available.

14. Graham, Robert, and Schwarze, H. R.: Differentiation of Type A and Type B Botulinus Toxins in Food, J. A. M. A. **76**: 1743 (June 18) 1921.

15. Hall, I. C.: Differentiation and Identification of the Sporulating Anaerobes, J. Infect. Dis. **30**: 445 (May) 1922.

16. One of these occurred in Berkeley (Dickson, E. C.: Botulism, Arch. Int. Med. **22**: 483 [Oct.] 1918) and the other in Sacramento, Calif. The latter outbreak has not been recorded (Burke, G. S.: Personal communication to the authors).

PUBLIC HEALTH VALUE OF THE KAHN TEST FOR SYPHILIS

A PRELIMINARY REPORT BASED ON FIVE THOUSAND EXAMINATIONS *

C. C. YOUNG, PH.D.
Director, Bureau of Laboratories, Michigan Department of Health
LANSING, MICH.

July 1, 1922, the Bureau of Laboratories of the Michigan Department of Health added to its various diagnostic procedures the Kahn precipitation test for syphilis.[1] Beginning with that date, physicians forwarding specimens for examination for the diagnosis of syphilis have been receiving the results of both the Wassermann and the Kahn tests. To our knowledge, this is the first attempt on the part of a public health laboratory in this country to report to physicians a laboratory test for syphilis other than the Wassermann. It seems timely, therefore, to discuss some of the important phases of this undertaking.

THE KAHN PRECIPITATION TEST

The outstanding feature of the Kahn test is its practicability. It can be applied in a diagnostic laboratory with comparatively little extra time, effort or expense. The antigen is easily prepared and lasts for many months. This antigen is mixed with salt solution according to simple directions, and a definite amount is added to a measured quantity of inactivated serum. In a large number of strongly positive serums, the precipitate becomes visible after the serum-antigen mixture has been shaken for a minute or two. In order to bring about complete precipitation in the weaker serums, the tubes are incubated overnight at 37.5 C. What makes the test particularly valuable is that the so-called $+++^{+}_{+}$ and $+++$ reactions show

* From the Bureau of Laboratories, Michigan Department of Health.

1. Kahn, R. L.: A Simple Quantitative Precipitation Reaction for Syphilis, Preliminary Communication, Arch. Dermat. & Syph. **5**: 570 (May) 1922; Second Communication, ibid. **5**: 734 (June) 1922; Third Communication, ibid. **6**: 332 (Sept.) 1922; Effect of Dilution on Precipitation Reaction for Syphilis Proposed by Author, Proc. Soc. Exper. Biol. & Med. **19**: 131, 1922; Relation Between Serum and Antigen in Precipitation Reaction for Syphilis Proposed by Author, ibid. **19**: 132, 1922.

clumps instead of ordinary precipitates. These clumps appear as flakes of coagulated egg albumin and are readily seen by workers unfamiliar with reading precipitates. The weaker reactions require some reading experience, which, however, can be acquired with comparative ease.

Another advantage connected with this test is that one may employ such serum quantities as are available. Thus instead of employing the regular quantities of serum and antigen, i. e., 0.3 c.c. of serum and 0.05 c.c. of antigen, one may employ 1.5 c.c. of serum and 0.025 c.c. of antigen, or even proportionately smaller quantities, with similar results. All one needs to remember is that the test requires 6 parts of serum to 1 part of antigen.

The following instance will illustrate the ease with which the technic of this test may be acquired. A summary of the third communication on this test,[1] together with a small quantity of antigen, was submitted to Miss Ora Mills, bacteriologist of the branch laboratory of the Michigan Department of Health, at Houghton, Mich., with the request that she give the test a trial. Two weeks later, Miss Mills reported that her results showed remarkable agreement with the Wassermann test, and she requested that she be permitted to continue to study the test. This worker had had no previous information on this test and yet was able to get good results from the very beginning. Miss Mills is now reporting the precipitation test parallel with the Wassermann test to physicians of the upper peninsula of Michigan.

It should be stated that before the Kahn test was reported from the main laboratory in Lansing and the branch laboratory at Houghton, 15,354 were performed. These tests, although showing some variation from the Wassermann,[2] definitely proved that we were dealing with a method for serum diagnosis of syphilis possessing a high degree of sensitiveness and specificity. On the strength of our experience with this number of tests, as well as the report on the diagnostic value of this test by Keim and Wile,[3] it was felt that the reporting of this test to physicians in conjunction with the Wassermann test would aid them in their diagnosis and treatment of syphilis.

COMPARATIVE RESULTS OF WASSERMANN AND KAHN TESTS IN 5,080 EXAMINATIONS

The Wassermann tests were performed with a sheep-cell system and guinea-pig complement. Two units each of complement and amboceptor were employed. The detailed procedure of this test as carried out in this laboratory is discussed elsewhere.[4]

In the Kahn test, two cholesterinized antigens were employed, each as a check on the other. The main difference between these two antigens was that, in one case, the heart muscle was extracted for ten days at ordinary icebox temperature, and in the other the extraction was carried out for nine days in the icebox and one day at room temperature.

The accompanying table shows that, of 5,080 serums examined: (1) 1,023 were positive, 200 were doubtful and 3,503 were negative, by both methods; total, 4,726 specimens checked by both methods (93.03 per cent.); (2) eighteen positive Wassermann reactions were doubtful, thirty-four doubtful Wassermann reactions were positive, seventy doubtful Wassermann reactions were negative and 181 negative Wassermann reactions were doubtful, in the Kahn test; 303 specimens may be considered as showing relative agreement (5.96 per cent.); (3) thirty-seven negative Wassermann reactions gave positive Kahn reactions and fourteen positive Wassermann reactions gave negative Kahn reactions; fifty-one specimens did not check (1 per cent.).

Of the fifty-one specimens that did not check, the variations were between weakly positive and negative reactions in almost every case.

Since a large number of specimens reach this laboratory without definite clinical histories, it is difficult to determine the condition of the patients in those cases which show variation between the two tests. Judging, however, from those instances in which the clinical condition of the patient was known, it appears that the fourteen positive Wassermann reactions giving negative Kahn reactions, as well as the thirty-seven positive Kahn reactions giving negative Wassermann reactions, were all from patients who were suffering from syphilis.

COMPARISON OF RESULTS OF WASSERMANN AND KAHN TESTS ON 5,080 SERUMS

Wassermann Test	Kahn Precipitation Test		
	Positive	Doubtful	Negative
1,055 positive* tests gave	1,023	18	14
304 doubtful tests gave	34	200	70
3,721 negative tests gave	37	181	3,503

* By positive is meant strongly as well as weakly positive.

The final word as to the value of the Kahn precipitation test must naturally come from the physician, and we are particularly encouraged in reporting the results of this test, by the manner in which Michigan physicians have received this extra service. Words of appreciation are coming in from every side. This appreciation expresses itself tangibly by the increase in the number of specimens reaching this laboratory since this test has been added to our diagnostic procedures.

SUMMARY AND CONCLUSIONS

The need for a test possessing fewer sources of error than the Wassermann test has been felt for a long time. This need has been particularly felt in public health laboratories where personal contact between physicians and laboratory workers is lacking on account of distance. The standardization of the Wassermann test, although helpful, would not, in our opinion, solve the problem of serum diagnosis of syphilis because of the numerous variables that are inherent in the test. Judging from experience gained in more than 20,000 Kahn tests, 5,000 of which have already been reported to physicians, we believe that to check each Wassermann test with this simple test is at present the best solution of the problem. We do not believe that it is the final solution, because we are dealing with tests of which the biology as well as the physical chemistry is very little known. But we do believe that to report the two tests to physicians gives them a far more dependable laboratory diagnosis than the Wassermann test alone could possibly give.

2. A complete report of these studies will be forthcoming in the near future.

3. Keim, H. L., and Wile, U. J.: The Kahn Precipitation Test in the Diagnosis of Syphilis, J. A. M. A. **79**: 870 (Sept. 9) 1922.

4. Kahn, R. L.: Complement vs. Amboceptor Titrations in the Wassermann Test, J. Lab. & Clin. Med. **6**: 153 (Dec.) 1920; The Wassermann Test and Its Interpretation, ibid. **6**: 579 (July) 1921; Optimum Conditions of Fixation of Complement in the Wassermann Test, Arch. Derm. & Syph. **4**: 358 (Sept.) 1921. Kahn, R. L., and Johnson, S. R.: Determination of Optimum Amount of Antigen in Complement Fixation Tests, Proc. Soc. Exper. Biol. & Med. **18**: 63, 1921.

It is recommended that the Kahn precipitation test be investigated in public health laboratories, with a view of establishing it as a routine check on the Wassermann test and thereby increasing the dependability of the laboratory diagnosis of syphilis.

A CASE OF PERSISTENT INFECTION WITH B. DYSENTERIAE (FLEXNER) *

N. PAUL HUDSON, A.B.
CHICAGO

A person who harbors pathogenic bacteria but who manifests no indication of infection is known as a healthy or true carrier. The best examples of such persons are seen among those who harbor intestinal pathogens. If, however, the person occasionally presents recurrent symptoms, he might not be considered a true carrier but rather as presenting a chronic case with intermittent manifestations of the disease. A definite distinction cannot be made between the two conditions. A review of the current literature of the last twenty-five years discloses a relatively small number of accurately diagnosed instances of either true carriers or of persons having chronic cases of dysentery. Those persons who harbor the Flexner type of dysentery bacillus are usually more common; their condition is less persistent, and the bacillus is discharged less regularly than in carriers of the Shiga type.[1]

Both the true carrier and the person presenting the chronic case have been incriminated in the spread of dysentery, especially in military organizations and in institutions; and also in epidemics of infant diarrhea caused by this group of organisms.[2] The importance of the detection of such an individual in the interest of the community, as well as of himself, is thus evident. If he is a true carrier, an accurate bacteriologic diagnosis is accidental or the result of an epidemiologic study. If he has a chronic case, however, his attacks, although intermittent, may bring him to the attention of an investigator. The infrequency of finding true carriers, and especially chronic cases of the Flexner type, has led Macalister,[3] on the other hand, to conclude that the carrier in dysentery is very rare and is negligible from an epidemiologic standpoint. He considers the convalescent the dangerous factor in the spread of this disease.

The irregularity of symptoms and of the discharge of dysentery bacilli necessitates repeated examination of the stool. Likewise, a series of negative results should be obtained before the dysentery convalescent is released. Because of this uncertainty of isolation of the infectious agent, most writers recommend that the serum of the suspected person, whether he is carrier or he has a chronic or an atypical acute case, be examined for specific agglutinins. Early in the disease, however, the antibodies may not be found; and since their persistence is irregular, the test cannot be taken as reliable evidence of continuation or of cessation of infection.[3]

* From the Department of Hygiene and Bacteriology, University of Chicago.

1. Fletcher, W., and Mackinnon, D. L.: Medical Research Committee, Special Report Series No. 29, 1920; Macalister, G. H. K.: Brit. M. J., Nov. 12, 1910, p. 1506.
2. Smillie, W. G.: The Epidemiology of Bacillary Dysentery, Am. J. Dis. Child. **13**: 337 (April) 1917. Gettings, H. S.: J. Ment. Sc. **60**: 605, 1914. Verzar, Fritz: München. med. Wchnschr. **63**: 291, 1916. Kendall, A. I.: Boston M. & S. J. **169**: 749, 1913.
3. Macalister, G. H. K. (Footnote 1, second reference).

The case that came to my attention is of special interest because of the relatively few cases of persistent infection with the Flexner type of dysentery reported in this country, and because of the apparently extended existence of the organism in the intestinal tract, if it can be assumed that the organism recently isolated had had an etiologic relation to the symptoms since their onset.

REPORT OF CASE

History.—M. C. M., a white man, aged 25, a student, who had lived in and about Seattle almost all his life, and in whose case the main circumstance of interest before June, 1918, was an appendectomy in 1916, was at his home when the first attack of dysentery occurred (June, 1918). The onset was characterized by violent diarrhea, abdominal pain and general weakness. Medical treatment had no lasting effect. He knew no one having similar symptoms and was inclined to think that green vegetables grown by the Chinese in that vicinity were the source of the infection. He entered the army late in the summer of 1918, and suffered mild attacks of diarrhea during his enlisted period of five months. In the following summer, he suffered a recurrence of the severe symptoms. About this time, he had "clay stools," and was treated to correct a suspected obstruction of the bile duct, by the administration of bile salts. During the winter, the symptoms always abated, but in the summer of 1920, as in the previous two summers, they were again severe. Since then, attacks of diarrhea had occurred intermittently every two or three months, usually without marked rise in temperature. No bacteriologic examinations previous to these tests reported here had been made.

Laboratory Findings.—Jan. 4, 1922, during the patient's latest attack of diarrhea, I isolated three typhoid-like colonies from the stool culture on Endo medium. The three strains were identical in all reactions, and were evidently the same organism.

The organism was a small, nonmotile, gram-negative bacillus. It fermented dextrose and mannite without the production of gas, but did not ferment lactose, saccharose or maltose. It produced indol in Armour's peptone broth in five days. Its reaction in litmus milk was to cause an acid condition in two days, followed by a gradual change to an alkaline reaction in eight days, without coagulation taking place at any time. These reactions are typical of the Flexner type of dysentery bacillus. This organism was agglutinated to half the titer of specific anti-Flexner and polyvalent serums, and was not agglutinated by serums produced against the Shiga or the Hiss-Strong types; it was completely agglutinated by the serum of the patient in the dilution of 1:80 and partially in the dilution of 1:200, five months after the last attack; and, at the same time, his serum agglutinated a known strain of Flexner dysentery bacillus in the same dilutions, but did not agglutinate a Shiga strain in as low a dilution as 1:40.

The feces were examined four times within four months, after the original positive examination, with negative results in every case, although twice the specimens were examined after the use of a laxative. During this four-month period and for two months since, the symptoms had not appeared. At the end of that time, the student left for the summer, and further observations were impossible.

SUMMARY

In the case of dysentery here reported, the symptoms of violent diarrhea and weakness occurred intermittently for about three and a half years after the onset (June, 1918). A strain of *B. dysenteriae*, Flexner type, was isolated during the latest acute attack (January, 1922). This organism was not found subsequently in a period during which symptoms were absent, and even after the use of a laxative. Possibly a relation exists between the organism isolated and the appearance of "clay stools," in 1919; and it may be reasonably conjectured that there was an infection of the gall-

bladder or the bile duct at that time, with temporary obstruction.

Specific agglutinins for the Flexner type of dysentery bacillus were found in the blood of the patient, but none for the Shiga type. This agglutination test was made about 145 days after the last appearance of symptoms and the successful bacteriologic examination of the feces. The persistence of agglutinins for at least 145 days and the absence of continuous positive cultural findings indicate the value of the agglutination test in the detection of carriers or of persistent chronic cases of the Flexner type of dysentery. The recovery of the pathogen only at the time of the appearance of symptoms points not only to the chronicity of the infection, but also to the possibility of an alteration in the resistance of the host.

ISOLATION OF MONILIA PSILOSIS IN TROPICAL SPRUE (PSILOSIS)

REPORT OF CASE THAT ORIGINATED IN KOREA *

J. M. ROGERS, M.D.
CHARLOTTE, N. C.

In 1916, Ashford[1] reported finding a monilia in cases of sprue in Porto Rico, distinct from *Monilia albicans*, which Bahr and others had previously reported as occurring in sprue. Ashford called this organism *Monilia psilosis* (Ashford). He considered it the specific cause of sprue when it colonizes in an intestinal tract rendered favorable to it by a glandular insufficiency caused by climatic or other influences and resulting in a lessened outpouring of the digestive juices, with increased bacterial activity producing an increased acidity of the intestinal tract, and so producing conditions favoring the growth of *Monilia psilosis*.[2]

Other articles by him have since appeared from time to time, giving the results of his further investigations on the etiology and treatment of sprue, dealing with the methods of isolating *Monilia psilosis*, its almost universal presence in sprue at some stage of the disease, and also giving the results of the several hundred complement fixation tests in which suspensions of *Monilia psilosis* were used as antigens on persons with and without evidences of clinical sprue. He also has reported the reactions shown by patients injected with vaccines prepared from this monilia. He obtained in patients with sprue strong allergic reactions, with systemic reactions resembling acute attacks of sprue, whereas with patients who did not show evidences of sprue he did not obtain these reactions.

Dr. Carl Michel,[3] of the U. S. Public Health Service, reported in 1917 the results of his work on *Monilia psilosis* in Porto Rico, giving the results of a large series of complement fixation tests and other laboratory investigations which he undertook with Dr. Ashford. In 1918, he[4] reported the results of the use of a vaccine made from *Monilia psilosis* in cases of sprue. In 1920, Oliver[5] reported a case of sprue originating in Porto Rico from which *Monilia psilosis* was isolated.

This organism was isolated from the case of sprue here reported, originating in Korea, where sprue is at present making great inroads among the foreign residents.

Mrs. R. (wife of the writer) went to Korea in October, 1917, and enjoyed good health until after the birth of her first, and only, child in August, 1918. Soon after this she began to complain of heartburn and epigastric distress, which became much more severe after an attack of influenza in November. For some months after this, she rarely had more than a week or ten days of comfort each month. In June, 1919, it was found that the blood pressure was very low (systolic pressure, 85). She was treated for that with subsequent improvement. Soon she was generally comfortable, but in June, 1920, a morning diarrhea began, which had become a daily occurrence by October. She was put on a modified sprue diet in January. In April, 1921, after a very acute attack, she was seen by the other three physicians of the mission, who all had had experience with sprue. The diagnosis was confirmed and she was put on a strict milk diet, with fruits and some vegetables, rice being added later. At first, she did well, but in a month she suffered a relapse, and lost ground constantly, until in September she was advised to return to America for treatment.

After her arrival in America, she was treated along the standard dietetic lines, but failed to make any progress until April, 1922, when she began to improve, and her case is now progressing favorably.

COMMENT

February 16, a specimen of one of the diarrheal stools was cultured on Sabouraud's medium, and three days later an abundant growth of raised, shiny, regular, creamy colonies was noted, standing out well above all the other growth on the plates. These were transplated to obtain pure cultures, and February 21 these were obtained, showing grossly a raised glistening shiny creamy growth, with sharply defined regular edges and a yeasty odor, faintly suggesting that of soured honey. The cell was a double contoured, round, yeastlike body about the size of a blood cell, though with many variations in size, showing numerous budding forms. All the cells had well-defined vacuoles containing from one to four motile coccoid bodies, these bodies becoming more numerous as the culture aged. The budding forms were gram-positive; the mycelial forms produced later became gram-negative as they aged. The capsule was shown up distinctly with Wright's stain, while Loeffler's methylene blue revealed the granular chromatin material of the cell body. Mycelial growth was freely produced on gelatin and also on ascitic agar under lowered oxygen tension, and, as the colony aged, on other mediums. A gelatin stab produced a very plain inverted pine tree growth, which Ashford regards as very important in identifying this organism. In litmus milk, the surface was rendered more alkaline, while later a faint acid reaction was produced deep in the medium, with a very marked casein digestion. The sugar reactions, which were considered very important in identifying this organism, were these: One per cent. sugar broths were inoculated with the organism, Andrade's indicator being used to detect acidity. Our organism gave marked acid and gas production with glucose; marked acid and very marked gas production with maltose; a small amount of gas and acid with saccharose; no acid

* The laboratory work mentioned here was done in the laboratories of the Crowell Clinic, Charlotte, N. C., at the instance of, and with the advice of, Dr. L. C. Todd of that organization.

1. Ashford, B. K.: Am. J. Trop. Dis. **3**: 32, 1915-1916; Monila Found in Certain Cases of Sprue, J. A. M. A. **64**: 810 (March 6) 1915; Studies in Moniliasis of the Digestive Tract in Porto Rico, Am. J. M. Sc. **150**: 680, 1915; Etiology of Sprue, ibid. **154**: 157 (Aug.) 1917.

2. Ashford, B. K.: Personal communication to the author.

3. Michel, Carl: Toxins and Serological Reactions in Sprue, Am. J. M. Sc. **154**: 177 (Aug.) 1917.

4. Michel, Carl: Use of the Monilia Vaccine in Treatment of Sprue, J. Infect. Dis. **20**: 53 (Jan.) 1918.

5. Oliver, W. W.: Cultural Studies on a Case of Sprue, J. A. M. A. **74**: 27 (Jan. 3) 1920.

or gas with lactose, and neither acid nor gas with mannite.

A vaccine made from this organism, prepared according to the technic described by Dr. Michel,[6] caused a very marked allergic reaction, producing in the patient a large red area about 6 cm. in diameter around the point of injection, accompanied by a systemic reaction resembling an acute relapse of sprue. When injected into a normal person over a period of sixty days, according to the method described by Michel, it caused no local reaction except a small reddened area, perhaps 2 cm. in diameter, and produced no systemic reactions whatever.

Since this organism seemed to correspond in all respects to *Monilia psilosis* (Ashford), we sent a culture to Dr. Ashford requesting him to test it out and give us his report. This he kindly did, reporting that it was a specimen of true *Monilia psilosis*.

The question then being raised whether *Monilia psilosis* could be found in patients living all their lives in or near Charlotte, N. C., we cultivated specimens from the stools of fourteen patients having chronic diarrhea. The specimens were furnished us by friends practicing in Charlotte. While large numbers of yeast-like organisms were isolated from these specimens and tested out, no *Monilia psilosis* was found. We cultivated a specimen from the stool of the writer and found *Monilia psilosis*. This could be easily expected, since he had been living for four years in the endemic area in a house in which, during the last six years, five cases of sprue had developed, and had been in daily contact with a case of sprue for two years. Several cultures made from the stools of the young son of the patient, with whom we had taken every possible precaution to prevent contact infection, if such exists, were all found to be negative for *Monilia psilosis*, but showed a heavy growth of what appeared to be two species of true yeasts closely allied to bakers' yeast. It is interesting to observe that he has never been fed yeast in any form except in bread, supposedly well baked.

Later, we cultivated a specimen from the stool of a patient who had lived for seven years in Korea, at Songdo (north of Seoul), and who had had amebic dysentery two years previously, at which time I saw her. Since then she had been subject to occasional attacks of diarrhea, but had never had sprue clinically nor any symptoms of it, except for the occasional attacks of diarrhea. In her case there was found no *Monilia psilosis*. So far as I know, no sprue has ever originated at Songdo.

CONCLUSION

An organism which was identified by Dr. Ashford as *Monilia psilosis* was isolated from a case of undoubted and clinically active sprue (or psilosis) originating in Korea. The same organism was also isolated from the stool of the patient's husband, but was not found in the stools of fourteen other persons, all of whom had chronic diarrhea and resided in or near Charlotte, N. C. Also, this organism was not found in the stools of two other persons, residents of Korea, who did not have tropical sprue. One of them did not live in the area where sprue has become so common among the foreign residents.

202 North Brevard Street.

6. Michel, Carl: Preparation of the Monilia Antigen, in Tice: Practice of Medicine, Hagerstown, Md., W. F. Prior Company **4**: 183-184, 1922; ibid. **4**: 188 1922.

OBSERVATIONS ON THE EFFECT OF SODIUM CITRATE ON THE BLOOD

ESPECIALLY CONSIDERING THE p_H FACTOR *

RALPH R. MELLON, M.D., M.Sc., Dr.P.H.
W. S. HASTINGS, M.D.
AND
GERTRUDE U. CASEY, B.S.
ROCHESTER, N. Y.

In a previous communication, one of us[1] drew attention to the possible rôle of the variable p_H of sodium citrate in the causation of untoward results in transfusion by the citrate method. We wish here to emphasize further our position in regard to the relation of the p_H factor to reactions following intravenous injections in general. As indicated in our paper, the proposition of imitating as closely as possible the p_H of the blood by buffering intravenous solutions was by way of suggestion, since it seemed to be a logical procedure. It was distinctly stated then that no claims were made for its efficacy, and none are made now. Such claims can come only from experimental work or from carefully controlled clinical studies.

In the literature of blood transfusion there are numerous attempts to account for the occurrence of more or less severe reactions when careful preliminary tests had indicated complete compatibility of the bloods of donor and recipient. It is scarcely necessary to review here the evidence for the existence of subgroups not discovered in the course of ordinary compatibility tests, or the probable occurrence at times of anaphylactoid reactions from the injection of the more or less foreign proteins of another individual's blood. It is sufficient merely to mention such possibilities to indicate our conviction that not all of these reactions are from the same cause. Our interest has been aroused by the frequent observation that they occur more often when transfusion is performed with citrated blood than when unmodified blood is used.

Several questions at once present themselves. Is sodium citrate toxic in itself? If so, why are not most cases in which it is used affected in this way? Why do some clinicians report a higher proportion of cases with these unexplained reactions than others using the same method? Do various samples of commercial citrate differ among themselves in their tendency to cause this action? In case citrate is not toxic per se, does it produce, in its reactions with the transfused blood, substances that are toxic or cause other unfavorable changes in the blood? That chemical reactions do take place with the blood is, of course, apparent. The very purpose in using citrate is to render calcium unavailable for the formation of thrombin, probably by tying it up in some undissociable form; but the exact reaction involved in this and its end-products have not, to our knowledge, been well studied. The question arises whether these end-products differ at times, owing to varying physical or chemical conditions affecting the reaction. Likewise, may there not be unintended side-reactions, produced by some samples of citrate acting on other salts, the proteins, or even the formed elements of the blood?

* From the Department of Laboratories, Highland Hospital.

1. Mellon, R. R.; Slagle, E. A., and Acree, S. F.: The Practical Application of Buffers, J. A. M. A. **78**: 1026 (April 8) 1922.

An occurrence in this hospital some months ago served to draw attention forcibly to the last of these possibilities. A patient was being transfused from a donor whose blood had been found compatible by cross-agglutination tests. While the blood was being injected he collapsed, so completely that for a time he was thought to be dead. Citrate from an ampule prepared by a reliable drug firm was being used. In the effort to find the cause of the reaction this was examined and the solution found to have a H-ion concentration much to the alkaline side of neutrality, its p_H equaling 10.5. Citric acid being trivalent, commercial sodium citrate may consist of varying mixtures of the monobasic, dibasic and tribasic salts, or even contain traces of free acid or base.

According to some authorities, at the point of stoichiometric neutrality pure trisodium citrate has a p_H value of 11.2; according to others, the p_H is 9.5. It is to be noted that, in the neutralization of this sample of citrate, more acid was employed than theoretically necessary to bring the solution from 10.5 to 8. This suggests that some impurity of an alkaline nature was present. In fact, the actual difference in titratable alkalinity between a pure citrate solution of p_H 8 and 9.5 or even 11.2 is exceedingly slight, since the titration curve between 8 and 11 is almost vertical, while from p_H 5 to 8 it is relatively horizontal. This amplification gives a clearer statement of the actual significance of the high p_H value of citrate than may be inferred from the reference to it in our previous communication. Practically it means that if the citrate is pure, a p_H of 10.5 probably does not mean the presence of free alkali; but if, as in our sample, more than the theoretical amount of acid is required for neutralization, the sample is probably impure, and a p_H of 10.5 would be consistent with the presence of free alkali of some sort.

It may be contended that a small amount of a solution with this reaction, mixed with a much larger volume of so strong a buffer as blood, will change the reaction of the latter very little, if at all. Trial proved this to be the case, a 1:5 mixture of this citrate with blood having a p_H of 7.4. Nevertheless, blood exerts its buffer action by virtue of the numerous substances present which must be changed in any attempt to alter its H-ion concentration, and the changes occurring in these substances may themselves be dangerous. A healthy assistant who had furnished the blood for a test of its buffering effect with this citrate experienced a mild but unpleasant reaction on the slow intravenous injection of 2 c.c. of a 5:1 mixture of her own blood with the citrate solution.

The patient in this case was later transfused from the same donor, with citrate buffered to maintain a H-ion concentration approximately the same as that of the blood, and no reaction occurred. The inference seems justified, therefore, that in this case the reaction was due to the use of an unsuitable citrate solution.

In a recent paper, Unger [2] cites experiments from which he concludes that sodium citrate, when added to blood in the proportions used in transfusion, causes the formation of substances from the stroma of the red cells that are anticomplementary in the Wassermann test; that it renders the red cells more fragile in the majority of cases tried; that, in addition, it diminishes the amount of complement in the blood, and that it virtually destroys the phagocytic activity of the leukocytes, and largely destroys the action of opsonin. Details of technic are not given, but careful analysis of the reports indicates confusion in the interpretation of some different experiments that are essentially the same. Since the citrate method of transfusion has been used with striking benefit in numerous cases of sepsis, and also since the method for the estimation of phagocytosis and opsonins that has been used since Wright's first publication involves the exposure of the cells to about ten times the concentration of citrate used in transfusion, such a sweeping condemnation for its effects on so many protective functions was unexpected. In view of the clinical observation of the effect of a too alkaline citrate mentioned above, one's first thought would be that Unger had employed an unsuitable citrate in this work. This suspicion seemed especially plausible, since Miss Evans of the Hygienic Laboratory of Washington had reported a marked interference with phagocytosis from salt solutions that were too acid or alkaline, which effect had been successfully corrected by buffers. It was accordingly decided that we should try to repeat Unger's experiments, using several citrates from different sources.

TABLE 1.—WASSERMANN TESTS WITH CITRATED BLOODS

	Solution 1 (p_H = 7.9)				Solution 2 (p_H = 6.4)				Solution 3 (p_H = 5.64)			
	0.15 C.c.		0.3 C.c.		0.15 C.c.		0.3 C.c.		0.15 C.c.		0.3 C.c.	
Case	W.*	C.*	W.	C.	W.	C.	W.	C.	W.	C.	W.	C.
1	—	—	1+	1+	—	—	2+	2+	—	—	3+	3+
2	—	—	1+	1+	—	—	3+	3+	—	—	3+	3+
3	—	—	—	—	—	—	3+	3+	—	—	3+	3+
4	—	—	1+	1+	—	—	—	—	—	—	3+	3+
5	—	—	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	1+	2+	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—	—	—	—	—	—
9	—	—	2+	1+	—	—	1+	1+	—	—	2+	2+
10	—	—	2+	2+	—	—	—	—	—	—	2+	2+

* W, Wassermann tube; C, control tube.

First, regarding the production of anticomplementary bodies: Unger tried the Wassermann reaction with the plasmas of bloods to which citrate had been added in the usual proportions for transfusions. As controls, the tests were performed with serums from the same patients. He states that in every instance the serums were negative and the citrated plasmas anticomplementary. We repeated this first, by citrating a series of bloods with a much higher proportion of the citrate solution, using 1 part of a 2 per cent. solution of each of the three commercial citrates found in the laboratory to 2 parts of blood. The fluid portion of these mixtures, therefore, contained approximately equal parts of plasma and citrate solution, minus an unknown quantity of citrate lost by precipitation. The 2 per cent. solutions used gave p_H values of 7.9, 6.4 and 5.64, respectively. Wassermann tests were performed, using an antisheep hemolytic system and a final total volume of 2.15 c.c. The citrated plasmas were used in quantities of 0.15 and 0.3 c.c. Routine Wassermann tests were made of serums in these cases.

Our results in this first attempt are given in Table 1, which records the results with the citrated specimens only. The serums were in all cases negative. It will be observed that, with the smaller quantity of citrated plasma, there was in no case an inhibition of hemolysis, while in more than half the bloods there was a partial inhibition when using 0.3 c.c. Half of this, or 0.15 c.c., is citrate solution, however, and controls run with

2. Unger, L. J.: The Deleterious Effect of Sodium Citrate Employed in Blood Transfusion, J. A. M. A. 77:2107 (Dec. 31) 1921.

each citrate alone gave complete inhibition with 0.1 c.c. (We have not attempted to explain the quantitative difference here; partial precipitation of the citrate and the influence of the antisheep amboceptor in some bloods are factors to consider.) There is, at least, no evidence of the presence of any anticomplementary substance other than citrate itself.

Thinking that our solutions might still have been too nearly neutral to produce the described effect on the red cells, or that in the excessive quantity used we had introduced a new factor, we next made up citrates, respectively, as acid and as alkaline as any commercial

TABLE 2.—ANTICOMPLEMENTARY ACTION OF CITRATED BLOOD; NO ANTIGEN USED; CITRATED PLASMA IN 0.15 C.C AMOUNTS*

	Blood 2 : Citrate 1			Blood 9 : Citrate 1		
Case	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.25$	Solution 3 $p_H = 9.54$	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.25$	Solution 3 $p_H = 9.54$
1	±	−?	±	−?	−	2+
2	−?	−?	−?	−?	−	−?
3	−?	−?	−?	−	−	−
4	−?	1+	−?	−?	−	1+
5	−?	−?	−?	−?	−	1+

* These plasmas contained a precipitate which interfered with the reading of very weak inhibitions of hemolysis.

samples we had seen, as well as one approximately neutral. The p_H values of the 2 per cent. solutions of these, in order of alkalinity, were 4.1, 7.25 and 9.54, determined by the hydrogen electrode. These were mixed with a new series of bloods in proportions of 1 : 2 as before, and 1 : 9, the usual proportion for transfusion. Tests for anticomplementary effect were made as before with 0.15 c.c. quantities, the results being shown in Table 2.

Since there was no question of an effect on the Wassermann test specifically, no antigen-containing tubes were run, the tubes all corresponding to the serum

TABLE 3.—ANTICOMPLEMENTARY ACTION OF CITRATED SERUM; NO ANTIGEN USED; CITRATED SERUM IN 0.15 C.C. AMOUNTS

	Serum 1 : Citrate 1			Serum 5 : Citrate 1		
	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.25$	Solution 3 $p_H = 9.54$	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.25$	Solution 3 $p_H = 9.54$
1	−	2+	1+	−	−	−
2	−	−	−	−	−	−
3	−	−	−	−	+	−
4	−	3+	−	−	−	−
5	−	3+	3+	−	−	−

Controls of Citrate for Tables 2 and 3

Amount Used	0.15 C.c.	0.1 C.c.	0.05 C.c.	0.025 C.c.
Solution 1	4+	3+	−	−
Solution 2	4+	3+	−	−
Solution 3	4+	3+	−	−

controls. The results are reported with the same conventions as the Wassermann test, however, the minus sign signifying complete hemolysis. The serums from these cases were all negative in the routine Wassermann tests. A precipitate in the plasma which had been observed, but partly avoided, in the first experiment was shaken up and included in this, since it was thought that it might be involved in the anticomplementary effect. On account of the resulting turbidity, weak reactions were difficult to read, but it was evident that there was no pronounced anticomplementary action. This has since been repeated with avoidance of the precipitate, when all tubes were clearly negative. Similar tests, made with mixtures of the serums from the same cases and citrate in approximately the proportions of the plasma-citrate mixture of Table 2, the whole blood being computed as one-half plasma, gave the results shown in Table 3. There is an anticomplementary effect only in some tubes containing the larger quantity of citrate, and controls show that this quantity may have such an effect in itself.

TABLE 4.—COMPLEMENT FIXATION WITH CITRATE SOLUTION FROM WASHED RED CELLS

Case	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.2$	Solution 3 $p_H = 9.5$	NaCl 0.8% (Control)
1	−	−	−	−
2	−	−	−	−
3	−	−	−	−
4	−	−	−	−

It was contended by Unger that an anticomplementary substance was formed by the action of citrate on red cells, as shown by first washing the cells with physiologic sodium chlorid solution and then mixing the suspended cells with citrate in the proportions used in transfusion, complement fixation tests being made with the supernatant fluid. Our attempt to repeat this is shown in Table 4.

TABLE 5.—COMPLEMENT FIXATION WITH PLASMA, OBTAINED BY CENTRIFUGATION, PLUS CITRATE

	Plasma 1 + Citrate 1			Plasma 5 + Citrate 1		
Case	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.2$	Solution 3 $p_H = 9.5$	Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.2$	Solution 3 $p_H = 9.5$
1	4+	−	−	−	−	−
2	−	−	−	−	−	−
3	−?	−	−	−	−	−
4	−	−	−	−	−	−

There was no inhibition of hemolysis. The converse experiment—using a mixture of citrate with plasma obtained by centrifuging whole blood in paraffined tubes—showed a positive result in only one tube, as indicated in Table 5.

Unger further stated that red cells exposed to citrate became more fragile. Drinker and Brittingham [3] make a similar statement, finding increased fragility in somewhat more than half the bloods tested. Sufficient acid or alkali to more than overcome the buffering effect of the blood would obviously cause hemolysis. Whether,

TABLE 6.—THE FRAGILITY OF RED CELLS EXPOSED TO TWO PER CENT. CITRATE

	The Lowest Percentage Solution of Sodium Chlorid Causing Beginning Hemolysis of Washed Cells Previously Exposed One Day to			
Case	Solution 1 $p_H = 4.1$ per Cent.	Solution 2 $p_H = 7.2$ per Cent.	Solution 3 $p_H = 9.5$ per Cent.	NaCl 0.8% (Control) per Cent.
1	0.4	0.4	0.4	0.4
2	0.3	0.3	0.3	0.3
3	0.3	0.3	0.4	0.3
4	0.3	0.3	0.3	0.4
5	0.3	0.4	0.3	0.4

in the process, lesser changes of reaction may cause changes resulting in increased fragility was a question. We added each of our three citrates to blood, left the mixtures till the following day, washed the cells, and then added a constant amount to sodium chlorid solutions of diminishing strengths. The results are shown in Table 6. The effect was not constant, two bloods

3. Drinker, C. K., and Brittingham, H. H.: Cause of Reactions from the Transfusion of Citrated Blood, Arch. Int. Med. 23: 133 (Feb.) 1919.

being the same whether citrated or not; another being slightly more fragile after the alkaline citrate, and the others less fragile than the controls.

It is also charged that citrate reduces the phagocytic activity of the leukocytes, and at the same time has a deleterious effect on opsonin. The experiments described by Unger do not show both these effects clearly since, as we understand, leukocytes, opsonin (serum) and citrate are all found together during the incubation period in both experiments. It may be conceded that a foreign salt, present in fair amount, might conceivably interfere with phagocytosis in some degree, even though the use of citrated leukocytes in measuring this function is almost universal; and this possibility might be greater, we felt, if a too acid or too alkaline citrate were used. Following Unger's technic for the phagocytic index, and using our three citrates, with control cells washed without citrate, and with a rather heavy suspension of *Staphylococcus pyogenes*, we obtained the results shown in Table 7.

TABLE 7.—THE EFFECT OF CITRATE ON THE PHAGOCYTIC INDEX

The Average Number of Staphylococci Ingested by Leukocytes Exposed One-Half Hour to			
Solution 1 $p_H = 4.1$	Solution 2 $p_H = 7.2$	Solution 3 $p_H = 9.5$	No Citrate
100	122	109	74

The figures are the average ingested cocci of from six to thirteen typical leukocytes. Larger numbers of cells were not included, owing to the difficulty of counting the closely packed cocci. Quantitative accuracy in phagocytosis tests is admittedly difficult; and without further observations we would not conclude that the low count in the control preparation indicates any actual increase in phagocytosis from the use of citrate.

Throughout these experiments, it has been noticed that the plasma from citrated blood is decidedly turbid in most cases. It was at first thought that this turbidity was most marked in those cases showing interference with hemolysis in the larger doses employed; but in later work all suggestion of parallelism in these factors disappeared. The formation of the precipitate is very noticeable when centrifuged plasma is mixed with citrate, and increases markedly both here and in the plasma from citrated whole blood when they are heated for inactivation. It is not formed in serum-citrate mixtures, and this suggests that it may be either a precipitated calcium compound or some other body involved in coagulation. We plan to make further study of this substance in the hope of learning its nature and its possible relation to transfusion reactions. Of interest and possible significance is the fact that with certain bloods this precipitate with plasma was slight or absent. If different bloods vary thus, it may be that certain disease processes may cause the variation in the same individual.

SUMMARY

When this work was undertaken, we had no intention of questioning the work previously reported, and wished merely to determine whether the p_H was not the factor causing these results.

We have attempted to show the formation of anticomplementary substances from the action of sodium citrate on both whole blood and washed corpuscles, and have failed to find any anticomplementary action except when so large a dose was employed that sufficient citrate was present to have this effect in itself. The anticomplementary action of citrate seems to be independent of the hydrogen-ion concentration of the solution used.

No increase of the fragility of red cells was observed from any citrate solution employed.

No decrease in the phagocytic index of leukocytes exposed to citrate was found.

We would not conclude that citrate is entirely harmless or without effect on the blood used in transfusion, but merely that in our hands it is without effect on the immune reactions studied, and this without regard to the hydrogen-ion concentration of the solution.

We wish also to reiterate that no doubt exists in our minds that moderately acid or alkaline solutions are quickly neutralized after injection into the blood stream. Accordingly, if the p_H factor is of importance, its action more probably is associated with the disturbances of colloidal equilibrium, which may accompany the rapid neutralization of solutions with an abnormal p_H value. Such a conception is, of course, theoretical, but it is in line with the explanations for anaphylatoxin reactions which Novy [4] and others have advanced.

TREATMENT AFTER IRRADIATION WITH ROENTGEN RAY

JOSEPH K. NARAT, M.D.
Roentgenologist, Augustana Hospital
CHICAGO

In the vast literature devoted to the so-called deep roentgen-ray therapy of malignant diseases, or the new short wave length roentgen-ray therapy, the technic of the application of the roentgen rays is described with the greatest exactness; but very little attention is paid to the after-treatment. Nobody will deny the importance of the postoperative treatment in cases in which a surgical procedure has been applied. This after-treatment has to deal chiefly with the prevention of postoperative shock and the promotion of conditions favoring the healing of the wound. A roentgen-ray treatment produces frequently more intensive physiologic changes than an operation, and the action of the rays is so prolonged that the patient has to be watched carefully over a considerable period of time. Often there are no visible symptoms immediately after the roentgen-ray treatment, and the undesirable changes appear gradually, even though they might be of such a degree as to menace the health of the patient heavily. As the roentgenologist does not, as a rule, have charge of the patient, the attending physician ought to be familiar with the methods to be applied after deep roentgen-ray therapy. Corresponding to the double kind of action of the roentgen rays on the body—general and local—the after-treatment can be divided into two kinds: general and local.

GENERAL AFTER-TREATMENT

Besides the elective action on the cells of the malignant growth, the roentgen rays possess the property to affect the different organs of the body in an important way. For example, in treating a goiter, it is sometimes unavoidable to expose the thymus to the action of the roentgen rays. Heineke, Rudberg, Aubertin and

4. Novy, F. G.; DeKruif, P. H. et al: Articles on anaphylatoxin and anaphylaxis, J. Infect. Dis. **20**: 499, 536, 566, 589, 618, 629 (May) 1917.

Bordet, Pigache and Béclère, and Regaud and Crémien showed the changes that take place in the thymus after exposure to roentgen rays. They observed degeneration and decay of the cells of the reticulum, and hypertrophy of Hassel's corpuscles. These parenchymatous changes certainly affect the function of the thymus gland, which is of special importance in young persons.

Zimmern and Cottenot proved a diminution of the function of the suprarenals in animals after exposure of the abdomen to the roentgen ray.

In Heineke's experiments, within the first four hours after irradiation a microscopic change was noted in the cells of the lymphatic organs—the spleen, the intestinal follicles and the lymphatic glands. These changes consisted in a destruction of the lymphocytes and of the malpighian corpuscles.

About three hours after the beginning of the irradiation, marked changes begin to appear in the bone marrow, and last for five or six days. They consist chiefly in destruction of the white marrow cells. According to Stengel, evidences of hypoplasia or aplasia of the marrow, with resulting loss of hematopoietic function and myelophthisic anemia have been observed in cases in which treatments have been given directly over the bone marrow.

The blood count reveals usually a slight leukocytosis after roentgen-ray treatment, followed by a leukopenia. The action of the roentgen rays on the blood and different organs can be demonstrated not only microscopically but also chemically. Linger proved that the amount of hematoporphyrin in urine, normally insignificant, is considerably increased after irradiation. As hematoporphyrin is nothing but an iron-free hematin, we have to admit that the roentgen rays presumably split the iron from the hemoglobin.

Werner, Exner, Zdarek and Schwarz demonstrated the formation of cholin from lecithin during the irradiation.

The application of the roentgen rays to any considerable portion of the body causes a tremendous increase in the destructive metamorphosis of tissue. The effect under consideration is not that of a toxic dose but that of a single therapeutic application. According to statements of Bloch, Schwarz, Benjamin, Sluka, Reuss, Quadrone, Moravitz and many others, the amount of excreted urea, purin bases and phosphoric acid is increased very markedly after irradiation, especially in cases of leukemia. This calls for increased activity of the eliminative organs. The cases in which this increased destruction of the tissues is likely to produce a harmful effect are those in which there is already a disturbance in elimination of waste products, as in nephritis, congestion of the kidneys, cirrhotic kidneys or those in which the patient suffers from the toxemia of cancer, pernicious anemia, leukemia or similar diseases.

As far as the unfavorable effect of irradiation on the different organs is concerned, there is practically no possibility of any specific after-treatment. The prophylaxis, consisting of a careful protection of the body from the roentgen rays with the exception of the area to be exposed, is the most important factor. It is sometimes extremely difficult to combat the roentgen toxemia. A careful observation of the patients after a roentgen-ray treatment proves in many instances that this toxemia is not to be neglected, as it commonly occurs. Irreversible changes in the blood, a real roentgen cachexia, can cause a premature death. Though it is very vital to administer a lethal cancer dose at the first attack, a reckless irradiation is not justified, and we would not do the patient a great favor in killing at the same time the cancer and its carrier. Almost every roentgenologist has his routine method of treatment, which consists usually in applying approximately an erythema dose to each field. The roentgenologist changes his technic according to the location and kind of neoplasm, the distance of the affected part of the body from the skin, and so on. The general condition of the patient is seldom taken into consideration, because the only goal is to destroy the cancer without burning the overlying skin.

It is absolutely necessary to accommodate the roentgen-ray technic to the general condition of the patient in order to avoid any of the complications mentioned; a determination of the urea content of the blood and the usual tests of renal function should be made before the treatment is started. If the test reveals a deficient renal mechanism, the applied dose of roentgen ray should be made as moderate as possible without coming down to the stimulating degree. The necessary amount of rays can be divided over a great number of days instead of giving it in one day. The experience of the roentgenologist will help him to use his judgment in selecting a suitable technic that will destroy the malignant growth without affecting greatly the general condition of the patient.

The frequently observed immediate reaction, consisting chiefly of headache, nausea, vomiting, general discomfort, diarrhea and the so-called roentgen sickness which appears at different times after the irradiation certainly cannot be considered merely as a reflex. Kienböck, Bergonié and Speder regard this disturbance as an initial prodromal stage of excitation in course of a degenerative process of the cells. Werner ascribes the intoxication symptoms to the poisonous action of trimethylamin, which is formed in the tissues during the exposure. Whatever the toxic material is, we have to furnish the organism of the patient our assistance in diluting it and thus making it less toxic, and also in eliminating it in the shortest time possible. This task is best accomplished by a hydration of the patient, by soaking his body with water. Plenty of distilled water should be forced by mouth, beginning at least twenty-four hours before the treatment, and continued for two or three weeks—the average duration of the action of the roentgen rays on the body. In cases in which large quantities of liquids by mouth cannot be given, as in tumor of the gastro-intestinal canal or in very asthenic patients, water should be given by continuous proctoclysis or eventually by hypodermoclysis, disregarding the apparent condition of the patient. It should never be forgotten that the symptoms of roentgen toxemia appear rather insidiously, and that our measures ought therefore be rather prophylactic than therapeutic. If the measurement of intake and output of liquids shows a deficiency of the renal functions, diuretics should be given immediately.

If it is necessary to apply great doses of roentgen rays in a very short time, in cases in which the excretory organs are defective and the absorption of toxic material is expected to be considerable, the tumor being large, it is advisable to give the patient a prophylactic blood transfusion the next day after irradiation. Kempton-Brown-Percy's method—the indirect full blood transfusion by means of glass containers lined with paraffin—is the method of choice. A physiologic blood count, embracing hemoglobin estimation, red count, white count, color index, differential count, and

V. 19

examination for abnormal red cells should be made at regular intervals, twice a week in the first fourteen days and once weekly in the following three weeks, in order to reveal as early as possible blood changes which might require a blood transfusion.

When the kidneys are very deficient and the tumor is very large, a venesection, followed, of course, by a blood transfusion, ought to be taken into consideration, because in such a case the loss of blood is less important than the saturation of the body with toxic material. This is the case especially in lymphosarcoma, because this kind of tumor is extremely sensitive to the roentgen rays.

We do not know how much of the toxic material is eliminated by the bowels. It is yet probable that at least one part of this material leaves the body by rectum, and it is therefore advisable to keep the bowels open. A drastic catharsis is not indicated on account of the more or less asthenic condition of the patient, but the administration of half an ounce of liquid petrolatum once or twice daily is advisable in every case.

THE LOCAL AFTER-TREATMENT

A very moderate dose of roentgen rays, properly filtered, does not affect the skin at all. But the usual dose applied to each field in cases of malignant tumor is the so-called erythema dose. This erythema graddually disappears, leaving especially, after repeated irradiation, a tan discoloration of the skin. This erythema does not require any special treatment, with the exception of the use of some dusting powder, such as talc, in cases in which it causes itching; petrolatum makes the condition worse. But if the physician in charge of the patient forgets that this apparently but slightly hyperemic skin is very sensitive to any kind of irritation and he applies any ointment, lotion, etc., which without a previous irradiation would not irritate the skin, he is likely to convert a harmless erythema into a painful exanthem. To avoid this unpleasant complication, it should be kept in mind that application of salicylic acid, chrysarobin, ichthyol, ether, alcohol, phenol, mercuric chlorid, Burrow's solution, or adhesive plaster to the exposed skin should be avoided for three weeks after the irradiation. Compresses with lead subacetate are especially dangerous.

When the roentgen-ray dose is a little too large, it causes an acute dermatitis bullosa. The symptoms are hyperemia, infiltration of the skin, blisters, exfoliation, and pains with a following atrophy of the cutis and of the papillae. In such cases, compresses with zinc oxid and olive oil, equal parts, changed several times a day, prove satisfactory. A dusting powder, talc and amylum, equal parts, gave in our cases a better result. In more severe cases, compresses impregnated with physiologic sodium chlorid solution may give relief. Lead subacetate is to be avoided. Quartz light alleviates the pains and promotes the healing.

A gangrenous dermatitis, causing formation of ulcers with sloughs, should never occur. The modern measuring devices, such as the iontoquantimeter, intensimeter and electroscope, allow the determination of the erythema dose precisely enough, for practical purposes at least. If a real roentgen-ray burn occurs, it is due to a faulty technic; for instance, to failure of determination of the erythema dose or failure to use the necessary filters. These ulcers used to occur in the roentgenologists who were steadily exposed to the action of roentgen rays without using any kind of protection. Nowadays they are seen much more seldom. Diluted mercurial ointment has been highly recommended for the treatment of small ulcers by Rammstedt, but other authors, as Wetterer, deny its good effect. Scarlet red ointment promotes the granulations. Application of 25 per cent. argyrol is worth trial. I saw the best results from methylene blue, used as a dusting powder. Cocain relieves the pains, but it should never be used, as it has a paralyzing action on the blood vessels and thus causes retardation of the process of healing. Also, iodoform, orthoform, and anesthesin should not be used. Caustic drugs are unfavorable. Finsen light, highly recommended by some authors, made the condition worse in cases treated by Wetterer. Thermopenetration acts as an analgesic and gives good results in many instances. Foveau de Courmelles, Allen, Gerabley, Freund, and P. F. Becker used d'Arsonval's high frequency current daily for many weeks with apparently very satisfactory results. In more resistant cases a thorough destruction of the ulcer with fulguration has been used. In most of the cases, however, only a surgical procedure, namely, an excision of the ulcer, gives a definite result. A skin graft is often necessary. Thiersch's method is frequently unsuccessful in these cases; a skin graft is the method of choice.

The chronic dermatitis occurs practically only in the technicians and not in the patients. This disease is manifested by hyperkeratosis, paronychiae, rhagades, telangiectases, excoriations, warts, ulcers, and eventually cancroids. The photographic solutions—developer and fixing bath—should be strictly avoided; also all disinfecting solutions, as compound solution of cresol, mercuric chlorid and phenol (carbolic acid); alcohol, ether and especially plaster of Paris are very harmful. Refraining from roentgen-ray exposure is important. Irritating drugs, silver nitrate solution, acids, etc., make the condition worse. Cocain should never be used because of its paralyzing action on the blood vessels. Daily bathing of the affected parts in hot water and application thereafter of any kind of fat, as hydrous wool fat, is indicated whenever rhagades are in the foreground of the lesions. Adhesive plaster is frequently very satisfactory; it keeps away the irritating air; it immobilizes the affected part and causes a beneficial swelling of the dry, hardened tissue where excoriations are present; tar renders a good service, especially in the form of tar soap for washing and of an ointment application to the lesions. The ointment consists of: Mercuric sulphate (B. P.), 1 gm.; precipitated sulphur, 10 gm.; rectified oil of birch tar, 10 gm.; casein ointment (B. P.), sufficient to make 120 gm. This ointment gave excellent results in many cases of a very resistant chronic dermatitis. Hyperkeratoses are to be cauterized by 30 per cent. hydrogen peroxid. Small hyperkeratoses can be removed by curretting. Small ulcers heal sometimes nicely under daily painting with tincture of iodin. Larger ulcers often require an immobolization of the affected part, which is best accomplished by means of Unna's paste, consisting of four parts each of zinc oxid and gelatin and ten parts each of glycerin and water. The sheet gelatin is soaked in water over night, the mixture put in a water bath the next morning, heated, and zinc oxid and glycerin added gradually. If this treatment is unsuccessful, application of hard, heavy filtered roentgen rays or radium, according to Holzknecht, may cure the lesion; otherwise fulguration or excision might be necessary. Unna seems to be right in saying:

"The chronic roentgen dermatitis belongs to the affections in which the prophylaxis means all and therapy nothing."

SUMMARY

1. A roentgen toxemia appears insidiously, but nevertheless may cause serious disturbances and even roentgen cachexia. To avoid it, the roentgen technic ought to be accommodated to the general condition of the patient.

2. A renal function test should be made before irradiation.

3. Plenty of water by mouth, proctoclysis, hypodermoclysis, mild cathartics, diuretics and blood transfusion eventually, preceded by venesection, help to dilute and eliminate the toxic material.

4. Irritating drugs should not be applied to the skin for three weeks after irradiation.

1518 West Chicago Avenue.

THE HEMAGGLUTINATING FRACTION OF HUMAN SERUMS *

RUFUS L. HOLT, M.D.
Captain, Medical Corps, United States Army
AND
FRANCOIS H. K. REYNOLDS, D.V.M.
Lieutenant, Veterinary Corps, United States Army
FORT SAM HOUSTON, TEXAS

The fact that iso-agglutinins are present in the blood of certain species of animals has been known since 1906, when Landsteiner and Shattock, working separately, announced that such substance or substances existed in certain members of a species, and acted on the cells of certain other members of the same species. It was not until 1907, however, that Jansky discovered that there existed, among the human species, four groups. The original investigators had described only three groups. Moss, in 1910, without knowing of the work of Jansky, found the same four groups, but, unfortunately, his grouping transposed the Groups I and IV of the Jansky classification. It is also known that these iso-agglutinins rarely occur in the lower animals; are normal to man; vary with certain pathologic conditions; are constant in man; are hereditary according to the mendelian law, and are not present until about one year after birth.[1]

Not being able to find in available literature a report of any work having been done to isolate the particular substance or substances which are responsible for this phenomenon, we undertook such an investigation. The serums of Groups II and III were obtained and fractioned according to the method advocated by Banzhaf,[2] except that the serum was used instead of the citrated plasma. Ten cubic centimeters of serum was diluted with 5 c.c. of distilled water, and to this was added 6.43 c.c. of saturated ammonium sulphate solution. This gave a 30 per cent. saturation with saturated ammonium sulphate solution, and precipitated the euglobulin. The two specimens were centrifuged at high speed, throwing down the euglobulin and allowing the supernatant fluid to be pipetted off. The supernatant fluid was then raised to 50 per cent. saturation by the addition of 4 c.c. of the saturated ammonium sulphate solution, precipitating the pseudoglobulin, which was separated by the same method as used for the euglobulin. The remaining supernatant fluid contained albumin. The two samples of euglobulin, the two samples of pseudoglobulin and the remaining supernatant fluids containing albumin from the two groups were placed in separate Schleicher and Schull thimbles and dialyzed for forty-eight hours in running tap water to remove the sulphate. They were then transferred to distilled water for twenty-four hours for the reason that the tap water contained natural sulphates. They were again transferred to fresh distilled water, and this water was found free of sulphates after immersion of the dialyzing thimbles for twenty-four hours.[3] The three fractions from the serum of the two groups (II and III) were then tested against the cells of Groups I, II, III and IV, the Moss classification being employed. The albumins were used as they came from the dialyzing thimbles. Parts of the euglobulin and pseudoglobulin from each of the two samples were dissolved in a small amount of physiologic sodium chlorid solution. Groups I, II, III and IV cells were suspended in physiologic sodium chlorid solution, and groupings were set up on glass slides. They were checked both microscopically and macroscopically. The results are presented in the accompanying table.

It will be seen that no part of the serum is involved in the process except the pseudoglobulin, and this fraction of the serum acts, in blood grouping, similar to the whole serum. It would appear, therefore, that the other elements are of no importance so far as grouping is concerned.

RESULTS OF INVESTIGATION *

E II	against	Group I	cells.....negative
P II	against	Group I	cells.....positive
A II	against	Group I	cells.....negative
E III	against	Group I	cells.....negative
P III	against	Group I	cells.....positive
A III	against	Group I	cells.....negative
E "	against	Group II	cells.....negative
P "	against	Group II	cells.....negative
A II	against	Group II	cells.....negative
E III	against	Group II	cells.....negative
P III	against	Group II	cells.....positive
A III	against	Group II	cells.....negative
E II	against	Group III	cells.....negative
P II	against	Group III	cells.....positive
A II	against	Group III	cells.....negative
E III	against	Group III	cells.....negative
P III	against	Group III	cells.....negative
A III	against	Group III	cells.....negative
E II	against	Group IV	cells.....negative
P II	against	Group IV	cells.....negative
A II	against	Group IV	cells.....negative
E III	against	Group IV	cells.....negative
P III	against	Group IV	cells.....negative
A III	against	Group IV	cells.....negative

* E II, P II and A II indicate euglobulin, pseudoglobulin and albumin derived from Group II serum. The remainder of the table is self explanatory.

Chemical analyses of the different fractions were not undertaken, nor were definite proportions used in grouping. The amount of the solutions of the three elements used was approximately the same as the amounts of the suspensions of the different cell groups.

The pseudoglobulins from the Groups II and III serums were desiccated over lime for eighteen hours and ground to a powder. This powder has been tested each week for the last two and one-half months, and has been found to retain its original grouping qualities.

* From the Laboratory, Eighth Corps Area.

1. Karsner, H. T., and Ecker, E. E.: The Principles of Immunology, Philadelphia, J. B. Lippincott Company, p. 99.

2. Banzhaf, E. J.: The Further Separation of Antitoxin from Its Associated Proteins in Horse Serum, Collected Studies Bureau of Laboratories, Department of Health, City of New York **7**: 114-116, 1913.

3. Eichhorn, A.; Berg, W. N., and Kelser, R. A.: Immunity Studies on Anthrax Serum, J. Agric. Res. **8**: 39 (Jan. 8) 1917.

V. 192

In performing the test, a small quantity of the powder is placed on a slide, a few drops of physiologic sodium chlorid solution added, and an emulsion produced by trituration. With this is mixed a drop or two of the blood to be typed. Agglutination usually occurs in about one minute.

The reaction is enhanced by employing a drop of blood direct from the donor, rather than diluting it in citrated salt solution.

CONCLUSIONS

The hemagglutinating property is contained in the pseudoglobulin fraction.

The euglobulin and albumin apparently play no part in the reaction.

The desiccated pseudoglobulin retains its potency for at least two and one-half months.

Clinical Notes, Suggestions, and New Instruments

LEAD POISONING FROM FACE ENAMEL

HENRY W. WOLTMAN, M.D., ROCHESTER, MINN.

Mrs. W. I. F., aged 38, who had been married for twenty years, but never was pregnant, came to the clinic for examination on account of paralysis of the hands. At the age of 3 years, she had had general convulsions; she had migraine headaches until the age of 16. Ten years before she had had an appendectomy and an operation on the ligaments of the uterus. Five years before she began having constant tremor of the upper extremities, which was rapid and of moderate amplitude; this had been growing in severity. She had always been nervous and irritable. Four years before she began to have nausea and vomiting. Roentgenograms of the stomach were said to reveal ulcer. The patient was placed on an ulcer diet for one and one-half years, and then on an anticonstipation diet. Six months later the vomiting became worse, and appeared almost daily. A full meal was followed by severe pain in the region of the navel. There was some shortness of breath and palpitation on excitement and exertion. For ten weeks chiropractic treatments were given, and water and Epsom salt were taken every second day. Vomiting increased, and in eight weeks the patient lost 25 pounds (11 kg.). She had pains in both arms, thighs and legs, and was unable to sleep, either night or day, for three weeks. The bottom of the feet became very tender, and she was unable to walk. Her hands and arms became very feeble, and five weeks before a bilateral wrist drop had gradually appeared. Two weeks before, between 6 and 8 o'clock in the morning, she had three general convulsions, during which she bit her tongue. Red, tender swelling appeared over the dorsum of the wrists. For the last twelve years the patient had used Owl Enamel Toilet Cream, which on analysis showed a very high lead content.

The patient was pale, high-strung and emaciated, with marked weakness of both upper extremities. The systolic blood pressure was 170, and the diastolic 110. The eyes were somewhat prominent. Both right and left lobes of the thyroid were somewhat enlarged; occasionally a bruit could be heard. the heart was slightly enlarged, particularly for a woman of her size. The radial arteries were definitely sclerotic.

Neurologic examination revealed complete paralysis of the interossei on the left side. Flexor power on the right was slight, and moderately impaired on the left. Extension of the wrist on the right was practically absent, and very weak on the left. The power of the muscles of the upper arms was somewhat impaired, but not nearly so much as the muscles toward the periphery; atrophy corresponded fairly well with the loss of power, although there was marked general emaciation. Power in the lower extremities, when the general nutritional state was taken into consideration, was almost unimpaired, and the patient walked fairly well. Tendon, abdominal and plantar reflexes appeared to be normal. Rest, static and movement tremors, moderate in amplitude and rate, were present in the arms, hands, tongue and lips. There was also slight tremor in the voice. The calves were moderately tender to pressure; otherwise, sensation was fairly normal. The soles of the feet were very tender to pressure. There was a dark, stippled pigmentation over the gums, particularly over the lower gums; also some pigmentation under the nails.

Examination of the fundi oculi was negative. The pupils were moderately dilated, and reacted somewhat slowly. The urine contained a faint trace of albumin and an occasional pus cell, but was otherwise negative. The leukocyte count, June 21, was 15,800, with a differential count of lymphocytes, 21.5; large mononuclears, 1 per cent.; transitionals, 1.5 per cent.; neutrophils, 75 per cent.; hemoglobin, 50 per cent.; erythrocytes, 3,970,000; color index, 0.6 +; slight anisocytosis and poikilocytosis; moderate basophilic stippling, and slight polychromatophilia. July 10, the leukocyte count was 14,000; lymphocytes, 20 per cent.; large mononuclears, 1.5 per cent.; transitionals, 4 per cent.; neutrophils, 72 per cent.; eosinophils, 1.5 per cent.; slight anisocytosis and poikilocytosis, and moderate basophilic stippling and polychromatophilia. Roentgenograms of the hands were negative; these were taken because of slight swelling of the wrist, which was markedly tender and red. The phenolsulphonephthalein test yielded an output of 30 per cent. in two hours. The Wassermann reactions on the blood and on the spinal fluid with 0.4, 0.6 and 1 c.c. were negative; there was 1 lymphocyte to the cubic millimeter. The basal metabolic rate, June 27, was + 20; July 12, + 28; July 18, +18, and July 19, + 7. The blood pressure varied from 170 systolic and 110 diastolic, to 108 systolic and 74 diastolic.

A diagnosis of lead poisoning was made. The possibility of hyperthyroidism as a factor was considered, but dismissed.

THE USE OF THE HOPKINS TUBE IN STANDARDIZING CELL SUSPENSIONS *

E. E. ECKER, PH.D., AND H. MAYNARD REES, M.D., CLEVELAND

The production of uniform cell suspensions is a matter of great importance in all serologic work. Variations of these suspensions invariably lead to variations in sensitization with a given dose of amboceptor, unless an excess of this antibody is employed, and variation of complement unit. So far, cell count and hemoglobin percentage determination have been proposed and employed; but we found both these methods tedious, time consuming and requiring considerable apparatus. A more simple method employs the Hopkins centrifuge tube. Besides the advantage of simplicity of apparatus, ease of manipulation and expenditure of practically no time, the results have been most satisfactory. A short description of the tube will be given; but for a more complete idea of its possibilities the original article is recommended.[1]

The tube is of the centrifuge type, of 10 c.c. capacity. The end has been drawn out for about 2.5 cm., so that the bore is of capillary diameter. This portion is graduated in hundredths of 1 c.c., from one to five hundredths, and is stout enough to withstand the pressure of centrifuging without a special holder. It is advisable carefully to prepare a preliminary standard suspension from which the volume of precipitated cells can be determined. Proper amounts or dilutions can be roughly figured so that the sedimented corpuscles will not exceed in volume the graduated tip. Two cubic centimeters of a 5 per cent. suspension of sheep erythrocytes will give just sufficient cells to fill the capillary end of this tube. Repeated centrifugations with the same suspensions, with the same speed and time, have given us constant results which can be read accurately to $\frac{1}{500}$ of 1 c.c. Uniform suspensions can later be readily made. If a suspension yields a certain volume of cells in excess, the corresponding volume in salt solution is added; and, if too low a

* From the Department of Pathology, Western Reserve University.
1. Hopkins, J. G.: A Method for Standardizing Bacterial Vaccines, J. A. M. A. **60**: 1615 (May 24) 1913.

volume is found, the concentration can be increased by the addition of washed full blood.

For several months, we have employed this method in routine serologic work, with uniform results. We found, further, greater uniformity in complement titrations than prior to the use of the tube.

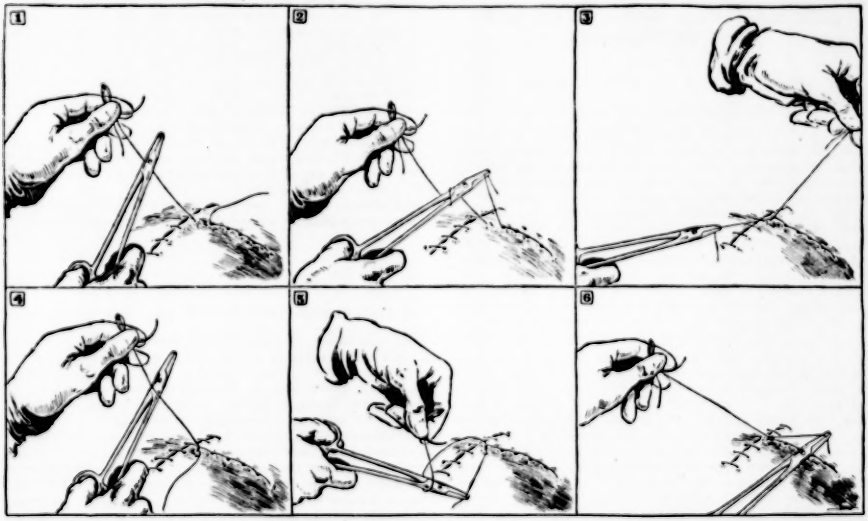
THE CONTINUOUS KNOTTED SUTURE

ARTHUR ROGERS GRANT, M.D., UTICA, N. Y.

After some experiments, we began using the Eastman[1] suture in every case recommended by its author, and I am convinced that a substantial contribution has been made to our technic.

I have applied my method of tying the knots with a needle-holder, which makes it easier and more rapid.

For the ordinary continuous knotted suture, I use a strand of 15 inches, allowing about 4 inches for the short end after the first knot is tied.



Application as a relaxation suture: It is carried across any wound where the skin is under tension. 1, forceps in right hand laid over ligature, tip pointing upward; if tip points downward, no loop is possible; 2, loop completed; forceps grasping short end firmly; left hand pulling long end over tips of forceps in right hand; 3, first half of knot completed; 4, right hand forceps placed beneath thread, tip pointing upward; this loop completes a square knot; 5, left hand drawing down second loop; 6, square knot completed.

The knots are about 1 cm. apart, and the short end of 4 inches will make eight knots easily. The accompanying drawings make a detailed description unnecessary.

I employ this continuous knotted suture as a hemostatic in various conditions, such as sewing the broad ligaments in hysterectomy; as a posterior through and through suture in gastro-intestinal anastomosis in place of Crile's cobbler's stitch; as a ligature of a broad area of great omentum, and as a suture of the capsule in Freeman's method of thyroidectomy. The other use is for relaxation, and is efficient in cleft palate operations as well as anywhere on the skin where the apposition skin sutures are under tension.

Dr. Eastman has been extremely modest in his presentation of a new method that I can emphatically endorse and recommend as a great improvement over older procedures for similar applications.

1. Eastman, J. R.: A Continuous Knotted Loop Suture, J. A. M. A. 78: 268 (Jan. 28) 1922.

FRACTURE OF THE BASE OF THE SKULL, WITH LOSS OF BRAIN SUBSTANCE, FOLLOWED BY RECOVERY

GEORGE H. HYSLOP, A.M., M.D., NEW YORK

While loss of brain substance is relatively common in fractures of the vault of the skull, its occurrence is quite rare with basal fractures. Rawling[1] observed two cases of such nature. One patient, with escape of brain substance from the right nostril, died a few hours after the injury. The second case was thus described by Rawling:[2]

"A lad, 11 years of age, fell some distance out of a window on to his head. He was admitted under the care of my colleague, Mr. Lockwood. On admission he was unconscious, and was bleeding freely from the right ear and nose. Shortly afterward it was noticed that brain matter was issuing from the right external auditory meatus, sufficient brain matter being obtained to fill a teaspoon. The extensive nature of the brain injury was confirmed by the fact that the left arm and leg were paralyzed for some days. On the fourth day the boy regained consciousness and recognized his relations. From this period onward he made an uninterrupted recovery. I have seen the lad on various occasions, the last time one year after the accident. At that time he was an exceedingly bright and intellectual boy."

Except for this instance, I have found no other case similar to the one here reported, in which the patient recovered.

REPORT OF CASE

L. K., a man, aged 50, admitted to the Second Surgical Division of Bellevue Hospital, Aug. 3, 1921, had been injured a few hours previously in a runaway accident. He was conscious on admission to the hospital, but could give no details of the accident. There was a laceration of the scalp, 2 inches long and extending down to the pericranium, on the left parietal region. Palpation revealed a fissure

1. Rawling, L. B.: The Surgery of the Skull and Brain, Oxford Publications, Frowde, 1912, p. 93.
2. Rawling, L. B.: The Surgery of the Skull and Brain, p. 101.

fracture of the left parietal bone, about 3 inches long. Its direction was diagonally forward and downward, the lowest point being just above the left pinna. Blood and cerebrospinal fluid escaped in quantities from the left external auditory meatus. The canal was filled with brain substance. About 2 drams of brain substance was removed by forceps in cleaning the canal.

The patient was stuporous, but irritable when aroused. His pulse was 60, and full in quality. There was definite weakness of the right side of the face. The right abdominal reflexes were diminished, and the right plantar response was extensor in type. There was no paralysis of the right arm or leg. Astereognosis was present in the right hand. Sensation was normal, except for moderate deafness in the left ear. The patient had a definite sensory aphasia. He misnamed objects, and did not recognize his errors, even when corrected. He could read and write.

The roentgen ray revealed a fissure fracture of the left parietal bone, as found by palpation on admission, and also a fissure fracture of the petrous portion of the left temporal bone.

The patient had a generalized convulsion a few hours after admission, and fundus examination disclosed congestion of the optic disks. As there seemed to be free escape of blood and spinal fluid from the left ear, decompression was deemed inadvisable.

Spinal fluid continued to drain for eight days. The patient was quite irritable, but the aphasia improved rapidly. After twelve days in the hospital, he refused to stay longer. Indeed, it was the patient's opinion that his injury was of little moment and he informed the physicians that, in altercations with his wife, he had often received much harder blows on the head.

A recent examination of the patient (February, 1922) revealed the following: The patient complained of tinnitus in the left ear, vertigo with a tendency to fall backward on assuming the standing position, insomnia and forgetfulness. This forgetfulness was confined to new associations, and particularly to the names of people and places. There were no headaches or constipation. There were still traces of the aphasia, demonstrated in hesitancy in naming objects presented, with occasional errors, corrected after help of the examiner. Physically, there was slight nerve deafness on the left side, and diminution of the right abdominal reflexes.

Summary.—(1) Fracture of vault and base, with extravasation of about 2 drams of brain substance through the basal fracture into the left external auditory canal; (2) sensory aphasia, weakness of the right side of the face, and reflex changes evidencing involvement of the right pyramidal tract; (3) recovery sufficient to leave the hospital by the twelfth day; (4) slight focal residual phenomena six months after the injury.

COMMENT

A point of practical importance is worthy of note. The presence of definite signs of localized injury to brain substance following skull trauma is in itself not adequate reason for an immediate decompression operation.

141 West Seventy-Fifth Street.

Accidents in Mineral Industry.—Accidents in all branches of the mineral industry in the United States, including coal mines, metal mines, quarries, coke ovens, and metallurgical plants (except iron-blast furnaces) resulted in the death of 2,367 men in 1921. In 1920, fatal accidents in the same industries amounted to 2,984. Accidents at coal mines killed 1,973 men as compared with 2,271 in 1920; at metal mines 230 men were killed and 18,604 injured, as against 425 killed and 32,562 injured the year before; at stone quarries 120 men were killed and 10,465 injured, as compared with 178 killed and 11,217 injured in 1920. While these figures indicate a reduction in fatal and nonfatal accidents as compared with 1920, there was an increase in the number of accidents per thousand men employed. The fatality rate for all workings combined was 3.59 per thousand employees as against 3.29 the year before; while the injury rate for all plants (except coal mines) was 192.69 per thousand employees as compared with 184.12 in 1920.

New and Nonofficial Remedies

BARIUM SULPHATE FOR ROENTGEN-RAY WORK

Abstracted from a Report of the Council on Pharmacy and Chemistry *

In consideration of the increasing use of barium sulphate in roentgen-ray work, the Council decided to describe barium sulphate for roentgen-ray work in New and Nonofficial Remedies. The description which appears in New and Nonofficial Remedies, 1917, was prepared after consulting interested manufacturers. This description has appeared in subsequent editions of New and Nonofficial Remedies with but minor changes.

A firm which manufactures barium sulphate for roentgen-ray work criticized the test for this substance, which limits the amount of permissible phosphate.

The firm stated that in the manufacture of barium sulphate for roentgen-ray work it has been the aim to supply an article of as high a degree of purity as is commercially obtainable and that the test which it employs to limit the amount of soluble barium salts is more stringent than that prescribed in New and Nonofficial Remedies. The firm stated that, though its product was free from objectionable impurities and equal to that of other brands on the market, it was confronted with the difficulty that its product, when tested by the New and Nonofficial Remedies standards, appears to contain acid-soluble barium salts. The firm urged that the phosphate test be omitted, in that it shows a noticeable reaction for phosphate when barium phosphate is totally absent, but when nonpoisonous and unobjectionable phosphates, such as calcium phosphate, were present.

The manufacturer submitted the tests which were used for the control of barium sulphate for roentgen-ray work. This included the test for soluble barium salts and also a test for the fineness (fluffiness) of the product.

The objection to the phosphate test appeared well founded, and the proposed revision of the text for soluble barium salts and the "fluffiness" test worthy of consideration; therefore, the A. M. A. Chemical Laboratory drew up a tentative revision of the N. N. R. standards which omitted the phosphate test and included the more sensitive barium test and the "fluffiness" test. It submitted this revision to those firms whose brands of barium sulphate for roentgen-ray work had been admitted to New and Nonofficial Remedies.

In general, the replies which were received indicated that the firms were ready to accept the more stringent test for barium salts, other than barium sulphate, and also the "fluffiness" test. One firm, however, definitely objected to the latter test on the ground that users of barium sulphate in roentgen-ray laboratories had found difficulty in preparing suspensions with a too "fluffy" product. Some of the firms did not favor omission of the phosphate test on the ground that appreciable amounts of insoluble phosphate, such as calcium phosphate, should not be permitted in barium sulphate, and two firms recommended the adoption of a test limiting the water and acid soluble material in barium sulphate. For the latter test, the argument was advanced that, under the present N. N. R. standards, large quantities of foreign salts are permitted.

Since one firm held that a "fluffy" barium sulphate had proved unsatisfactory, inquiry was made of a representative group of roentgenologists as to whether they considered it desirable that barium sulphate be required to be in a finely divided physical condition. Inquiry was also made as to the brands which had been found satisfactory.

In general, the twenty-eight replies which were received held that barium sulphate should be in as fine a state of subdivision as possible. However, many of the replies held that extreme fineness was not essential. This was emphasized by the enumeration of the brands that had been used with satisfaction. One correspondent stated that a medium fineness was to be preferred and that difficulty had been experienced

* A copy of the complete report will be sent on request. It will also appear in the Annual Reports of the Council on Pharmacy and Chemistry for 1922.

in the use of a very fine powder. Another correspondent stated that a powder passing a forty mesh sieve was satisfactory, and another that a product was acceptable so long as it did not clog up an enema tube (containing no particles larger than a grain of wheat). Several objected to the high price charged for some of the very finely divided products.

From the replies of the users of barium sulphate, it appears that the fluffiness test is not essential. It has the objection that a powder containing a small proportion of very fine material will respond favorably to the test, even though it contains a relatively large proportion of coarse particles.

The replies also make it clear that the phosphate test (which makes a product containing a negligible amount of calcium phosphate inadmissible) is unnecessary. The adoption, in its place, of a test which shall require reasonable freedom from foreign salts, along with tests which shall guarantee freedom from water soluble and acid soluble barium salts and freedom from heavy metallic salts, such as those of lead, would appear adequately to insure a barium sulphate for roentgen-ray work which is of acceptable quality and which can be produced at a reasonable price.

Accordingly the A. M. A. Chemical Laboratory drew up revised tests and standards on the basis of the available evidence. These were submitted to the firms whose products stood admitted to New and Nonofficial Remedies. After considering the replies which were received, the Laboratory recommended to the Council that the revised tests and standards be adopted. The Council adopted this recommendation and directed that the description of barium sulphate for roentgen-ray work be revised and that the revised monograph be included in New and Nonofficial Remedies, 1923.

DISCUSSION ON RADIUM IN UROLOGY

(Concluded from page 1657)

PAPERS OF DRS. HERBST AND THOMPSON, AND BARRINGER

DR. HENRY G. BUGBEE, New York: In the treatment of cancer of the prostate the first question to settle is the presence of metastasis, by a complete roentgen-ray examination and study of body functions. If metastases are present, one's effort should be devoted to making the patient as comfortable as possible. This is best accomplished in the majority of cases by establishing permanent suprapubic drainage. In the slow growing type of cancer, patients will often live for years in comparative comfort. If metastases are not present, the bladder should be opened suprapubically. Radium needles may be inserted in the gland under sight, controlled by a finger in the rectum. The portion of the gland immediately surrounding the vesical orifice is the one most intimately connected with the production of retention and cannot be reached through the perineum. A Pezzer catheter is sutured into the bladder and the needles withdrawn alongside the tube at the expiration of the desired length of time. The maintenance of suprapubic drainage relieves the bladder of its function, reduces congestion in the vesical neck and prevents absorption from infection. Subsequent applications of radium with needles may be made by removing the drainage tube, dilating the sinus and inserting the needles into the prostate under guidance of one finger in the bladder. The finger of an assistant placed in the rectum is a guide to this surface of the prostate. When the intravesical enlargement in no longer palpable by a finger introduced into the bladder, and bladder function (which is tested by clamping off the tube and voiding) is satisfactory, the drainage tube may be removed. Further application of radium should be made by introducing needles into the prostate through the perineum, under the guidance of a finger in the rectum, and continuing at intervals so long as areas of induration may be detected. Surface applications of radium by means of special rectal applicators clamped in position are beneficial in checking invasion, by the growth, of the seminal vesicles and immediately surrounding area. If these surface applications are not made carefully, the same area being covered too often, irritation of the rectum will surely take place. During the past year I have removed one prostate the seat of early cancer with a satisfactory result. At the present time, our best methods of attack in carcinoma of the prostate are surgery and radium, carefully selecting the cases and paying particular attention to details and systemic treatment. Of nineteen cases of bladder cancer, two were treated by suprapubic drainage, cautery and radium. They were extensive cases with metastases but the patients were young. Six with extensive infiltrating type were freed of growth. Two patients have died of metastasis. Two with limited infiltrating growths treated by radium only are free of growth. The remaining patients were treated by resection and radium implantation about the line of resection. They are all free of growth at the present time. I can see no reason why cancer of the bladder, as elsewhere, when limited, should not be removed. Fortification of the line of resection with radium may help in preventing recurrence. Radium alone will destroy many growths if applied cautiously, giving bladder drainage during the process and promoting body elimination to thwart toxemia.

DR. HERMAN L. KRETSCHMER, Chicago: The most important thing in discussing carcinoma of the prostate is the question of diagnosis, and the part of the diagnosis that has most interested me concerns the presence or absence of bone metastases. In 20 per cent. of our cases of carcinoma of the prostate, we have been able to demonstrate metastases in the osseous system, and when bone metastases have been demonstrated we have not used radium in the prostate. In carcinoma of the bladder, as well as in carcinoma of the prostate, careful study of the osseous system must be made before treatment, either radium or surgery, is carried out. The same statement holds true regarding extension to the lymphatics. We have always used the long needles in order to reach the upper margin of the growth. I have had some extra long needles made to reach the region of the seminal vesicles should this be necessary. Unless there are some definite indications for opening the bladder, these patients should be treated with needles through the perineum rather than by opening the bladder. We reach the whole prostate when we do perineal prostatectomy; and why should we not do it with radium and save the long continued wearing of the catheter? One point Dr. Herbst brought up was the formation of scar tissue after irradiation. This occurs not only in the bladder but in the uterus in cases of women who have had extensive irradiation for carcinoma of the uterus and for fibroids. This should be borne in mind when women have been treated by this agent. I have seen obstruction to the urinary outflow produced by this scar tissue in the pelvis, with resulting stricture of the ureter and hydronephrosis, infected and noninfected. I wish Dr. Barringer would tell us something about the rapid dissemination of carcinoma after treatment. We have had several cases in which there seemed to be a rapid dissemination following treatment.

DR. B. A. THOMAS, Philadelphia: Sufficient has been said, I think, to show that in all probability there is something of value in the radium treatment of prostate and bladder carcinoma. I feel that it is too early to come to any final conclusions relative to the exact place of radium in the treatment of carcinoma. I agree with each essayist and also with Dr. Kretschmer that the fundamental point is to determine whether there are metastases, either glandular or of the skeleton. I must confess that with many cancers it is difficult to determine this point, but it is certainly essential to differentiate the cases in which metastases have occurred in order to be in a position to decide what shall be the appropriate treatment of the case. Our series has covered about thirty cases of carcinoma of the prostate and bladder, mostly of the bladder. I was much discouraged as to the results of treatment by fulguration and radium, which, though somewhat better than "watchful waiting," are not as gratifying as originally hoped nor have they measured up to expectations in many instances. Our technic consists primarily in performing a cystotomy, exposing the growth and destroying as much as possible by intense fulguration; and then implanting short, not long, needles (this, however, is not a matter of great moment). In some instances I have supplemented the suprapubic exposure of the prostate after two or three weeks by a perineal incision and implanted the radium needles from

V. 192

below. I have not used the long needles, guided by the finger in the rectum. We have been able to benefit only a few of these patients so far as alleviation of symptoms and prolongation of life are concerned. I know of two patients who were made worse by radium implantation; that is, the disease was aggravated and metastasis invited, passing in one case to the lymphatic system and in the other to the skeleton.

DR. HERMON C. BUMPUS, JR., Rochester, Minn.: In order to be successful, the exposures must come from multiple areas, and if the needles are placed in the gland alone, and the periphery of the growth is not irradiated, all the cells will not be reached. When the growth can be cross-fired, every position of the needle is a new method of combating the disease. Dr. Herbst's method of putting the needles in the bladder is still another method. The offensive must all be put over in one wave. To give one treatment and then have the patient return for further treatment does not give the most successful results. The men working with other types of malignancy believe that the best results from irradiation must come from the first treatment. I believe that insufficient radium stimulates. If the periphery is treated through the rectum and the center of the growth with needles, and through the urethra, and sufficient dosage is given, stimulation will not occur. Since 1915, we have treated 217 cases of carcinoma of the prostate with radium. The early cases were treated with radium applications in the urethra and rectum, the center of the gland being neglected, and the results were not much better than in the untreated cases. We, therefore, changed from this form of treatment to the use of needles, and the results were still poorer, because the periphery, where the greatest cell activity occurs, was neglected. So for three years we have given the radium from all possible points of application, and the results are much better. We have found that the average maximal dose is 2,500 to 3,000 mg. hours. We have tried to give higher dosage, but distressing sloughs had resulted. The dosage is given approximately as follows: from 500 to 1,000 in the urethra by means of bare tubes; from 400 to 600 in the rectum, and from 1,500 to 2,000 with the needles through the perineum. We use four needles containing 12.5 mg. and allow them to remain in position for four hours; they are then pulled out 1 cm. and remain a second four hours; thus eight areas, approximately 1 cm., have been rayed. If this dosage is repeated after the urethral and rectal treatments have been given, approximately eight more areas are exposed.

DR. BUDD C. CORBUS, Chicago: Primarily, success in the treatment of carcinoma of the bladder and prostate depends on the absence of metastases. The management of these cases is very unsatisfactory, no matter what method is used. In 1917, Dr. Kolischer of Chicago pointed out a method of treating carcinoma of the bladder with diathermy. He was the first in this country to advocate the teachings of Eugene Duyon. Recently, before the American Urological Association, I called attention to the difference between desiccation or fulguration and thermic electrocoagulation. Desiccation or fulguration is not new to urologists, and "sparking" with the d'Arsonval current has come to be very helpful to many of us in the treatment of benign growth of the bladder, but we do not realize that the carbonization which follows the monopolar current defeats our efforts to produce heat in the depths of the tissue. When surface carbonization is present, the current will go to the edge of the burnt area and not to the center of the diseased tissue. Recently, in following the work of the Dr. J. F. Percy with the use of his cold iron, we have been informed that the cancer cells are destroyed at a temperature of 113 F. in vitro, and that it is possible to use heat up to 140 F., without destroying normal cells. This was verified in work on dogs. In working with diathermy, we have two ways to destroy the growth, either the escharring or the slow coagulation with low degrees of heat. At present, we have found that, by opening the bladder and using low degrees of heat, thereby slowly coagulating the tissue, our results have been much better. As we know that heat will destroy the cancer cells, we have not deemed it advisable to apply radium as an adjunct.

DR. A. J. CROWELL, Charlotte, N. C.: A very simple, easy and effective way of applying radium needles in carcinoma of the prostate is to expose the gland under sacral anesthesia and insert the needles under vision. This can be done without pain; and by means of a tractor, such as the one designed by Dr. Cecil or the one I had made up several years ago, the gland can be fixed and the needles inserted very accurately.

DR. ARTHUR L. CHUTE, Boston: Two things must be considered in these cases: the malignancy of the gland and its obstructing element. Too many operators seem to have forgotten all about the obstructive element in these cases. The people I see come in not because of referred pain but because of the difficulty with urination, due to obstruction. We often give these people tremendous relief from their obstruction by removing what we can of the growth perineally. We can remove a considerable amount of the malignant tissue and then the radium has just so much less malignant tissue to destroy. It seems to me self-evident that the less tissue a given amount of radium has to act on, the more marked will that action be. Therefore, I feel it is of great advantage to remove as much of the diseased prostate as possible before using the radium. In this way, we accomplish two things: relief of urinary back pressure and the destruction of as much malignant tissue as possible. In several instances, I have been able to remove enough of a prostatic growth to give a very fair measure of relief, for from one to three years. In one case, not so long ago, a man who had considerable retention and was in rather a bad condition was able to take up his business and golf for more than a year, which I am sure he could not have done if he had worn a suprapubic drainage tube. I think we should make these men as nearly normal as possible for as long time as possible, and then if we have to, at the end, resort to suprapubic drainage. I believe also that we should not use radium until we have removed as much of the malignant tissue as we can. There are two reasons for this: first, the less the amount of malignant tissue, the more complete its destruction by a given amount of radium; second, the use of radium has a devitalizing action on surrounding tissues and induces slow healing. I saw this last year a man with carcinoma of the prostate who had been given fifty hours of irradiation before his malignant prostate was removed. The prostate was then removed, but the lesion never healed. He had a recto-urethroperineal fistula as long as he lived. I think that, in this instance, the use of the radium was a great mistake—that it so devitalized the tissues that they could not heal. We should remove what tissue we can and then put in the radium. This, I believe, is only sound surgical judgment.

DR. ROBERT H. HERBST, Chicago: It seems to me that we temporize when we begin the treatment of cancer of the prostate by introducing radium through the closed perineum. There are a number of excellent reasons for beginning this treatment through a suprapubic opening in the bladder. By this approach, we are able accurately to embed radium in the area above the prostate and under the trigon. It is through this region that most of these cancers spread and get beyond our reach. The radium needles should be passed through the trigon into the tissues behind the bladder, as well as into the prostate and the region of the seminal vesicles. I am satisfied from our experience that these areas cannot be accurately irradiated through the perineum. The supraprostatic region must be controlled early if we hope to prevent the progress of the disease. We use the perineal route for irradiating the lower posterior part of the gland. Another reason for opening the bladder is to relieve the retention of urine from which these patients suffer. Most of them have impaired function when they seek relief, and drainage of the bladder not only protects the upper urinary tract but also gives them comfort during the time that irradiation is carried out. We believe that bladder drainage is as necessary in the treatment of prostatic cancer as in benign hypertrophy of this gland. Toxic reactions seen following the introduction of radium will rarely occur if bladder drainage is instituted in the early part of the treatment. I question the safety of Dr. Crowell's method of opening the perineum and pulling the prostate down by means of a tractor. The prostate gland becomes fixed very early in the course of the disease, and the use of a tractor under these conditions would traumatize without improving the exposure.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Six dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading matter

SATURDAY, NOVEMBER 11, 1922

THE NATURE OF BACTERIOPHAGY

Thwort, and a little later d'Herelle, observed that when Berkefeld filtrates of the cultures of certain bacteria obtained from stools and other bacteria are added to cultures of dysentery or other bacteria, a solution of the micro-organisms often occurs. This reaction is referred to as the d'Herelle phenomenon or bacteriophagy. The nature of the solvent agent or bacteriophage, that is, the substance in the filtrates which has the power of dissolving bacteria, has not been definitely established. D'Herelle [1] believes it to be a filtrable virus, a parasite of the bacteria themselves, because, when a portion of the dissolved cultures is added to a new culture, it, in turn, may go into solution. Moreover, agar subcultures of the dissolved or partially dissolved cultures reveal, as a rule, colonies of a shaggy, moth-eaten appearance, which have been called "sensitive" colonies, because the bacteriophage or lysant is present on the medium in which the growth occurs, in solutions in which the colonies are washed, and in suspensions of the disintegrated or ground-up bacteria.

Bordet [2] was the first to advocate that the dissolving principle originates from the bacteria themselves, which, when touched by this active substance, are capable of regenerating it, the factor responsible for the phenomenon being thus unceasingly reproduced, on the condition, however, that the bacteria are still living and provided with the nutritive substances necessary to their growth. Bail and Watanabe,[3] who also believe the phenomenon to be one of autolysis, attempt to explain it by an analogy with cell division, as exemplified in spermatogenesis; bacteriophagy is likened to the autolysis of the old nucleus prior to its reconstruction into two nuclei. This comparison is suggested by their belief that the dissolving agent is produced by the generative mass of bacteria rather than by the vegetative mass. Davison [4] has recently made a study of the properties of bacteriosolvents, and his results lead him to believe that they are probably enzymatic in nature. Although he advances no positive proof that the bacteriophage is not a living, ultramicroscopic, filter-passing organism, he has determined many of its characteristics, and they seem to indicate its enzymatic nature. Thus, he found that the bacteriosolvent activity of a bacteriophage is decreased by passage through sterile peptone water and dead dysentery bacilli; that the activity is not changed by heating to from 60 to 67 C. for an hour; that it is more complete in action in low dilutions and at a p_H of from 8.0 to 8.2 and against young cultures; finally, that it is destroyed by the addition of sodium hydroxid and that it is nonpathogenic for rabbits. He observed that filtrates of stools of patients with bacillary dysentery sometimes dissolved more readily foreign strains of dysentery bacilli than cultures from the same case, revealing that the bacteriolysant may not be as active against the strain causing the disease as against other strains of the same bacterium. D'Herelle also observed this variability of lysant power, and he believes that it favors his view that the bacteriolysant is a living thing, because it is similar to the variation in virulence often observed in strains of the same bacterium. He also claims to have increased the solvent power of feeble strains by successive passages.

It has been suggested that this solution of bacteria may play a part in the immunity and defensive mechanisms of the body, and it is perhaps not surprising that a "bacteriophagotherapy" has developed already. A "cure" of pyelonephritis by the administration of a lysant of the colon bacillus has been reported, and the method has been tried in many cases of dysentery. Davison,[5] however, reports the absence of any therapeutic effect whatever in twelve children suffering from bacillary dysentery. The results of further investigations of this interesting reaction will be received with interest.

1. D'Herelle, F.: Nature of Bacteriophage, Brit. M. J. **2**: 289 (Aug. 19) 1922.
2. Bordet, J.: Concerning the Theories of the So-Called Bacteriophage, Brit. M. J. **2**: 96 (Aug. 19) 1922.
3. Bail, O., and Watanabe, T.: Experiments on the Specific Activity of the Bacteriophage, Wien. klin. Wchnschr. **35**: 362 (April) 1922.
4. Davison, W. C.: Observations on the Properties of the Bacteriolysant, J. Bacteriol. **7**: 475 (Sept.) 1922.

THE WORK OF THE A. M. A. CHEMICAL LABORATORY

When some seventeen years ago the Council on Pharmacy and Chemistry began its work of turning the light on proprietary medicines, its main concern was to let physicians know the composition of many of the proprietary medicines widely advertised in medical journals. At that time the exposure of false or vague and meaningless declarations of identity was considered of basic importance. This fact is shown by the name of the Council and by the appointment of such men as Harvey W. Wiley, then chief of the U. S. Bureau of Chemistry; his associate, Lyman F. Kebler, an authority on drug analysis; Martin I. Wilbert, noted for his work in scientific pharmacy; Samuel P. Sadtler, then professor of chemistry at the Philadelphia College of Pharmacy, and Professors

5. Davison, W. C.: The Bacteriolysant Therapy of Bacillary Dysentery in Children, Am. J. Dis. Child. **23**: 531 (June) 1922.

V. 192

C. S. N. Hallberg and W. A. Puckner, then teachers at the University of Illinois School of Pharmacy. This need for work which would bring home to the medical profession the essential secrecy of the drug preparations which they were asked to prescribe led also to the establishment of the A. M. A. Chemical Laboratory under the directorship of Professor Puckner.

The initial report of the Council gave the medical profession the first definite statement of the composition of some of the acetanilid mixtures then so widely exploited as headache remedies. Following this came reports from the Council which gave the results of chemical analyses of such proprietaries as "Tyree's Antiseptic Powder," "Uron," "Thialion," "Sulpholythin," "Labordine," "Campho-Phenique," "Oxychlorin" and "Saliodin." Though many of these preparations were offered to the profession as new chemical discoveries and endowed with imaginary and bizarre chemical formulas, they were, in fact, simple mixtures of well known chemicals, and their analysis presented little difficulty.

As a result of this work of the Council and the laboratory, most promoters of pharmaceutical specialties today know better than to invest money in the exploitation of mixtures the sale of which could be interfered with when once the inevitable happens and the composition of the nostrum is disclosed. But this does not mean that today the composition of all proprietaries is correctly declared. Through ignorance, incompetence or by design, proprietary medicines are still to be found sailing under false colors with regard to their composition. The work of the Chemical Laboratory, however, has become more difficult with these changed conditions. Instead of analyses of mixtures of well known drugs, the laboratory has to do not with the obvious, but with new compounds of novel composition which possess neither the chemical composition nor the constitution ascribed to them. The report of the Council on Pharmacy and Chemistry on "Galyl" that appears in this issue [1] is an example of the more difficult character of work now required of the laboratory.

When "Galyl" was first put on the market, it was claimed to be—and probably was—a compound consisting of two arsphenamin molecules linked together by phosphorus groups. Its administration, however, required manipulations which made its preparation for injection as difficult as that of arsphenamin. With the growing popularity of neo-arsphenamin, the manufacturer of Galyl felt the need of an improved, easily administered preparation. The result was the "new" Galyl which is now on the market. This is to be had in solution ready for administration or in the form of a powder which is easily prepared for injection. Fortunately for the profession and the public, if unfortunately for the promoter of Galyl, the A. M. A. Chemical Laboratory investigated this preparation and reached the conclusion that giving this product amounts to the administration of arsphenamin (in the form of the sodium compound) with extraneous inorganic material, and that the "new" Galyl is an unessential and useless duplication of the well established arsphenamin.

Involved and difficult as this work was, it is of the greatest value to our profession, for it obviates the need of comparative clinical trials of Galyl with arsphenamin. The work of the A. M. A. Chemical Laboratory makes it almost certain that Galyl is, for all practical purposes, nothing more than sodium arsphenamin.

1. Galyl: Propaganda for Reform Department, page 1706.

HUMAN CARRIERS OF TETANUS

The World War gave renewed prominence to tetanus as a menace to man. It served as a reminder of the peculiar behavior of *Bacillus tetani*, giving emphasis to the anaerobic character of this microorganism. The almost universal distribution of the bacilli in nature has long been known, their occurrence in garden soils and street dirt being attributed to the presence of animal excrement. That feces become distributing agents for the tetanus bacillus is explained by the fact that the bacillus exists in the intestine of many normal animals, especially of the herbivora. According to Noble,[1] experimental evidence discloses that this micro-organism may multiply in the intestine of such animals. In fact, the intestine, or rather the intestinal content of certain individual animals, seems to offer especially favorable conditions for the growth of the tetanus bacillus; such animals are "tetanus carriers," comparable, in regard to the distribution of the organism, with typhoid or cholera carriers, among human beings.

Claims of the occasional presence of tetanus bacilli in the alimentary tract of man have long been on record. The studies of Tulloch were surprising in indicating the possible occurrence of these microorganisms in a considerable percentage of men who had seen overseas service on fields presumed to abound in the tetanus-producing species. Equally unexpected is the report by Tenbroeck and Bauer [2] from the Peking Union Medical College in China showing that a third of the male population examined in the vicinity of Peking carry tetanus bacilli in the digestive tract, and that the bacilli are probably multiplying there. The Peking bacteriologists aver that man is thus an important factor, in certain vicinities, in the distribution of the bacillus, for it is not uncommon to see human feces deposited on the streets; and such excrement is used to fertilize the fields, so that dust from the streets and fields must contain great numbers of spores that come from man.

1. Noble, W.: Experimental Study of the Distribution and Habitat of the Tetanus Bacillus, J. Infect. Dis. **16**: 132, 1915.
2. Tenbroeck, C., and Bauer, J. H.: The Tetanus Bacillus as an Intestinal Saprophyte in Man, J. Exper. Med. **36**: 261 (Sept.) 1922.

The proof that the tetanus bacillus can grow in the human digestive tract, as is said to be the case also in horses, is found in its presence in persons who, although they have been on a virtually sterile diet for many days, may still eliminate millions of spores of tetanus bacilli in a single stool. Why, under such circumstances, the distribution of human tetanus carriers is not even more universal needs to be explained. Perhaps it is due to a gradual development of immunity; or possibly other bacterial species manage to crowd out that of tetanus or make conditions unfavorable for its growth. These facts explain the frequent occurrence of tetanus neonatorum in certain regions. They also warn that tetanus may occur there after damage to the intestine by mechanical injury or disease, but without the usually necessary external lesion. The Peking examinations were made on Chinese who live in more intimate contact with the soil than does the average man in Europe or America; consequently, one must not expect to duplicate Tenbroeck and Bauer's findings everywhere. Nevertheless, when there are districts in the world where at least one out of three persons among the lower classes is discharging tetanus bacilli in the feces, the entire problem of tetanus as a disease must be considered from certain new angles. Finally, it remains to be determined whether the incidence of tetanus among the Chinese bears any definite relation to the number of intestinal carriers of the bacilli.

Current Comment

ROENTGEN RAYS AND STERILITY

Ever since early in the use of roentgen rays in clinical and experimental work, it has been known that dangers of a subtle sort are connected with them. For instance, it was discovered that unless precautions are taken, the workers may become sterile. In the male, azoospermia has been described, while for the female there have been reports of atrophy of the ovarian follicles, and menstrual disturbances. The details of these deleterious effects have not been ascertained with as much accuracy as have the reactions that are initiated in the phenomena commonly known as roentgen-ray burns. Recent experiments by Hooker [1] are interesting and significant in this connection. His tests on animals show that small doses may stimulate sexual development if they are applied before sexual maturity. Even exposure to larger ones may not affect the subsequent reproductive history of the female. The use of the roentgen rays at a later period of development, however, is liable to result in unsuccessful breeders, as previous experience has shown. There is at least one distinction between the effects of castration and those of exposure to roentgen rays. Sterilization in the latter case, according to Hooker, does not affect the interstitial tissue. Furthermore, the growth curves of animals sterilized by the use of roentgen rays are entirely normal, in contrast with the altered rate of growth well known in the case of castrated individuals.

1. Hooker, D. R.: The Effect of X-Ray upon Reproduction in the Rat, Am. J. Hyg. 2: 461 (July) 1922.

"PATENT MEDICINE" SECRECY—A TARDY ADMISSION

For years the medical profession has insisted that the real reason that nostrum makers keep the composition of their products secret is (1) for the glamour that such secrecy throws around them and (2) the fact that so long as the public does not know what is in a preparation the advertiser's imagination is given freer play. The unknown is always awe-inspiring. The "patent medicine" makers, on the other hand, have stoutly maintained that their reason for keeping the composition of their product secret is that the formula is personal property and, if it were made known, the market would be flooded with imitations, and their property destroyed. Now comes the mouthpiece of the "patent medicine" people, *Standard Remedies*, with the tardy admission that the medical profession is right and their own constituents wrong. Says this publication in an editorial "Formulae and Secrecy":

> "It should be remembered that while a developed formula has a great value, *it is the trade name, the advertising, the merchandising skill applied in connection with it that creates its valuable good will.* [Italics ours.—ED.] Ten to one a thorough search through books of formulae will reveal that your own is already known to the medical world. But no one can get the same benefit from it that you have gained unless they spend in merchandising it the same money you have spent."

Elsewhere in the same editorial *Standard Remedies* admits that "the ingredients of some of the biggest selling proprietary medicines are duplicated in one way or another by imitators. Usually without profit." In other words, as THE JOURNAL has iterated and reiterated, the composition of the average "patent medicine" is usually the least commercially valuable thing about it. The real thing of commercial value is the *name*, which the manufacturer protects by a perpetual monopoly granted under the trade-mark law. Pink dishwater could be put on the market under some fancy name (trade-marked) and by persistent and insistent advertising built up into a large property. If it were nothing but pink dish-water, only advertising, of course, could keep it alive. Add a stiff dash of spiritus frumenti, or some equally intriguing drug, to the mixture and the composition alone might keep it moving after momentum had been given it by advertising. The claim long made by "patent medicine" makers that they had to keep the composition of their nostrums secret in order to protect themselves is buncombe because every "patent medicine" maker knows what *Standard Remedies* admits, that his preparation can be analyzed by any good chemist and duplicated. Now that the "patent medicine" people themselves acknowledge that the real commercial value of their products lies in the "development" that has been brought about by advertising, there is no longer any reason for our timid lawgivers shying at every "open formula" bill that may be introduced for the purpose of giving the drug-taking public a modicum, at least, of protection.

HOSPITAL FIRES

It is startling to learn that, during 1919 and 1920, 870 fires occurred in institutions classified as hospitals, asylums and sanatoriums—an average of more than one fire a day in that type of institution. If any structures should be properly protected, those in which human beings lie incapable of self-protection should be given first consideration. Among the causes of fire in these institutions were, first, sparks on the roof; second, defective chimneys and flues; third, lightning; fourth, heating installation, and fifth, electricity. These etiologic considerations point the way to prevention, but there are further special considerations which apply to hospitals. The height of hospital buildings is a matter for concern; ambulatory patients should be placed on the higher floors, the lower floors being reserved for those completely bedridden. In every hospital, there should be located fire alarm boxes for prompt notification in case of fire. Volatile liquids which are easily inflammable should be handled with caution. Chemical extinguishers should be easily available, and a fire drill for the employees should be a regular experience. "When it is realized," says the National Board of Fire Underwriters, "that most fires are preventable, and that there are none too many hospitals, it seems a pity that large sums must go annually toward replacing what might have been conserved for further usefulness."

AN APHORISM FROM CELSUS FOR CANCER WEEK

After Hippocrates came the writings of Celsus, who lived in the reign of Tiberius Caesar. It was the period just preceding and following the coming of Christ. The great work of Celsus, "De re medicina," was one of the first medical books printed (1478), afterward passing through more separate editions than almost any other scientific treatise. Among the writings of this great observer and scientific student of disease is the following aphorism:

> ONLY THE BEGINNING OF A CANCER ADMITS OF A CURE; BUT WHEN IT IS ONCE SETTLED OR CONFIRMED, IT IS INCURABLE, AND (THE PATIENT) MUST DIE UNDER A COLD SWEAT.

AGAIN "PROPRIETARY MEDICINES AND THE DOCTOR"

Twice recently we have called attention to the way in which the mails of physicians, and both medical and lay editors have been flooded with reprints of a paper by one Irwin G. Jennings, who was giving "Vital Reasons Why the Medical Profession and the Medicine Man Should Pool Their Ideals and Work Together to Benefit Humanity." The paper in question appeared originally in the official organ of the Glass Container Association which, of course, is interested in the bottle business. The author of the paper was described as a "judge" and a "lawyer," although the fact was not brought out that he was the editor of *The Glass Container*. In THE JOURNAL's previous comments, it was pointed out that, while the Glass Container Association has its headquarters in New York City, and the envelops in which this reprint was sent out bore the New York address, the postmark showed that the mailing was done in Chicago to various parts of the United States. The envelops did not bear a stamp, but bore the post office imprint reading; "U. S. Postage Paid 1 Cent, Permit 2492." THE JOURNAL is advised that "Permit 2492" is held by the Standard Remedies Publishing Company of Chicago! *Standard Remedies*, as mentioned elsewhere in these pages, is the mouthpiece of the "patent medicine" interests. "We are advertised by our loving friends."

COLORADO DEFEATS ANTIVIVISECTION

As THE JOURNAL goes to press, word comes that the antivivisection measure on the Colorado ballot under the initiative was defeated by the people of the state on November 7 by a vote of about six to one. The contest has been well fought and the people of Colorado, especially the medical profession, are entitled to congratulations and the gratitude of the nation on the victory they have won on behalf of science and the welfare of mankind and of domestic animals.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Health Officer Wins Suit.—After a deliberation of only five minutes, a jury in Judge Aird's court, October 20, returned a verdict in favor of Dr. Judson D. Dowling, city health officer of Birmingham, defendant in a suit for $10,000 brought by Dora Glass. She sued Dr. Dowling, alleging false imprisonment for eleven days in August, 1920, when she refused to be examined for venereal disease.

ARKANSAS

Appointment for Dr. Holt.—Dr. William L. Holt, Knoxville, Tenn., has been appointed epidemiologist for the Arkansas State Board of Health.

University News.—"Founders' Day" was observed by the University of Arkansas School of Medicine, Little Rock, October 7. Dr. Morgan Smith, the mayor of the city and Ex-Governor Brough gave addresses.

CALIFORNIA

Hospital News.—After a delay of more than a year, actual construction work will be started immediately on the new Hollywood Hospital, to be erected by the Hollywood Hospital Association. The estimated cost of erection is $500,000.——The Seymour Sanatorium, Banning, will in future be known as the Mary Henderson Sanatorium. Dr. Charles E. Atkinson will continue as medical director.——One hundred and seventy-eight disabled veterans were moved from the government hospital at Arrow Head Springs, October 23, when a forest fire which had been raging for two days menaced the hospital.——The Celite Hospital, Lompoc, which was recently destroyed by fire, will soon be rebuilt.——Pasadena will have a preventorium conducted under the same management as the Pasadena Dispensary. Construction work on the building will soon be started. The structure is to cost $35,000. A new training school for nurses will be organized at the Fresno County Hospital, in charge of Miss Carey Eppley, superintendent of nurses at Noepming Sanatorium, Minn. The training school and hospital will be affiliated with the Fresno State College. Dr. Herbert O. Collins is director of the hospital.——Work will be started in the near future on

the new wards for the care of tuberculous patients at the Los Angeles County Hospital. The wards will have a capacity of 200 beds.

COLORADO

New Tuberculosis Association.—The Boulder County Tuberculosis Association was recently reorganized, with Dr. Severance Burrage, Boulder, as chairman and Dr. John F. Andrew, Longmont, vice chairman.

CONNECTICUT

Personal.—Dr. Joseph E. Stroebel, superintendent of the Hartford State Tuberculosis Sanatorium, has been appointed in charge of the tuberculosis division of Grasslands Hospital, Valhalla, N. Y.——Dr. Edward H. Truex, formerly of East Hartford, has recently returned from abroad and will practice in Hartford.

Name of Health Bulletin Changed.—Volume 1, No. 1, of *Bridgeport's Health*, has just been received. This is the title by which the monthly bulletin of the department of health of Bridgeport, *Community News*, will in future be known. The first number of the new issue gives a brief sketch of the growth of the department and an outline of its present organization.

Medical Association News.—At the annual meeting of the Meriden Medical Association, Dr. David P. Smith was elected president, Dr. Raymond V. Quinlan, vice president, and Dr. Cole B. Gibson, secretary-treasurer. Arrangements were made for a course of several lectures by prominent physicians and surgeons to be held during the winter.——The one hundred and first semiannual meeting of the Hartford County Medical Association was held at the Hunt Memorial, Hartford, October 31.

DISTRICT OF COLUMBIA

Study in Physical Training.—Physical training methods in District of Columbia high and junior high schools will be studied by a committee appointed by Supt. Frank W. Ballou, superintendent of the public Schools. The members are: Charles Hart, Robert A. Maurer and Capt. A. C. Newman.

Contracts Let for Gallinger Hospital.—Major E. W. Patterson has begun the letting of contracts for furnishings for the $2,000,000 Gallinger Memorial Hospital. The institution will be ready for occupancy by January 1. More than $30,000 will be spent in equipping the hospital. The old psychopathic building is being renovated and will be used as a nurses' annex to the hospital proper.

Decision on Medical Practice Act.—An important decision was rendered by Judge Robert Hardison of Washington to the effect that practitioners of osteopathy, chiropractic and other kindred treatments do not come under the medical practice act of Congress regulating the practice of medicine and surgery in the District of Columbia. According to the decision practitioners must take an examination before the medical supervisors and be registered and licensed before they are permitted to treat patients by the practice of surgery. The case in question was a complaint against Thomas J. Howerton, an osteopath of Washington, who was charged with violating the medical practice act when in his professional capacity he treated the foot of Norman C. Glover by the use of a mechanical device.

GEORGIA

Tuberculosis Organization Formed.—The Glynn County Tuberculosis Association was recently formed at Brunswick with Dr. John W. Simmons, president, and Dr. Richard L. DeSaussaure, secretary.

County Society Holds Free Clinic.—The Randolph County Medical Society held a free tuberculosis clinic in Cuthbert recently. This was the first clinic preliminary to an intensive campaign which will be carried on against tuberculosis by physicians in their respective communities. This is the second free clinic of its kind ever held in the state, it is reported. Drs. Carl C. Aven, Atlanta; Elmore C. Trash, president of the Georgia Tuberculosis Association, and Charles M. Stephens, Waycross, were among those present.

IDAHO

Child Health Institute.—Under the auspices of the Idaho Bureau of Child Hygiene, a children's health conference was held in Nampa, October 25-26. Examinations were made, and lectures were given on the proper care, and the diet and sleep routine for children.

ILLINOIS

Physician Fined.—It is reported that Dr. James E. Inskeep, Mount Carmel, was sentenced to thirty days in prison and fined $100 and costs at Cairo, recently. He pleaded guilty to violation of the Harrison Narcotic Law.

Physician Convicted.—The jury in the trial of Dr. Preston O. Carrico, Ashmore, returned a verdict of guilty, October 25, it is reported. Dr. Carrico was charged with manslaughter in causing the death of Mrs. Hutson by an illegal operation. Motion was made for a new trial.

Personal.—Drs. Charles E. Wilkinson, Danville, and H. N. Rafferty, Robinson, were elected president and secretary, respectively, of the Wabash Valley Aesculapian Society, recently at the annual meeting in Paris.——Dr. Walter E. Kittler, Rochelle, was recently reelected president of the Ogle County Medical Society at Dixon.——Dr. Leo B. Couch, Prairie du Rocher, is in a hospital in St. Louis, recovering from the effects of coming in contact with a live wire when fixing a radio aerial wire. The first finger of his left hand was burned entirely off.

Society News.—At the annual meeting of the Fulton Medical Society in Canton, Dr. Elden M. Price, Astoria, was elected president, and Dr. William E. Schallenberger was reelected secretary. State Senator Jewell addressed the meeting on the subject: "Why Should the Public Be Interested in Scientific Medicine and Medical Legislation?"——At a meeting of the Iowa and Illinois Central District Medical Association, held in Davenport, Iowa, Dr. James Dunn read a paper on "Some Points in Infant Feeding," and Dr. Rollin T. Woodyatt, associate professor of medicine at Rush Medical College, Chicago, read a paper on "The Management of Diabetes Mellitus."——At the thirteenth meeting of the Illinois Tuberculosis Association in Springfield, October 23-24, Dr. George T. Palmer, Springfield, was elected president, and Anna Bowles, Joliet, secretary.

Chicago

Chicago Abolishes Sirens.—Stating that they are a detriment to public health, Health Commission Bundesen announced, October 21, that all shrieking exhaust whistles and sirens carried by motor trucks are to be silenced as nuisances. The chief of police promised his cooperation.

Society News.—The Chicago Physicians' Club, the Chicago Surgical Society, the Chicago Gynecological Society and the Chicago Chapter of the American College of Surgeons entertained at dinner, November 4, the following distinguished foreign surgeons now visiting this country: Prof. Raffaele Bastianelli, Rome; Prof. Einar Key, Stockholm; Dr. Edwin Felling, Mora, Sweden; Dr. Enrique Pouey, Uruguay; Dr. Guillermo Munnich, Chile, and Dr. José Arce, Argentina. Following the dinner, the guests gave addresses.

Dental Clinic for Children.—Following the examination of 141,811 schoolchildren in the city, health officials found that 88,343 had defective teeth, or oral conditions that needed treatment. The commissioner of health, with the cooperation of Dr. Arthur D. Black, dean of the Northwestern Dental College, has made arrangements by which certain groups of schoolchildren will be given dental treatment at that institution. It is planned to take care of at least twenty children daily. A charge of from 15 to 25 cents will be made for those whose parents are able to pay.

Institute of Medicine Entertains Two Nobel Prize Winners.—At a meeting of the Institute of Medicine of Chicago held, October 27, Dr. August Krogh, winner of the Nobel prize, read a paper entitled "The Exchange of Substances Through the Capillary Walls, with Some Applications to Pathological Problems." At the same meeting the presiding officer presented Dr. Bárány, also a Nobel prize winner in medicine, who stated his pleasure at meeting Dr. Krogh in Chicago. "Although I live but one hour's ride from him," said Dr. Bárány, "it was necessary that I come to Chicago to hear his lecture."

Formation of Health Department Advisory Staff.—Dr. Bundesen, health commissioner, announced, November 4, the formation of a health department advisory staff composed of physicians who are considered authorities in various branches of health work. The advisory staff is composed of the following: laboratory advisory committee, Dr. Ludvig Hektoen, director of the McCormick Institute for Infectious Diseases; Arthur I. Kendal, Ph.D., dean of Northwestern University Medical School, and Dr. David J. Davis, head of the department of bacteriology of the University of Illinois. On the consulting staff of pediatricians are: Drs. Julius H. Hess,

University of Illinois; Clifford G. Grulee, professor of pediatrics, Rush Medical College, and Isaac A. Abt, Northwestern University Medical School. Departmental advisers on prenatal care are: Drs. Joseph B. DeLee, head of the Chicago Lying-In Hospital and professor of obstetrics, Northwestern University Medical School, and Davis S. Hillis, associate of Dr. DeLee at the Lying-In Hospital. The departmental adviser on venereal disease is Dr. Louis E. Schmidt, professor of genito-urinary surgery, Northwestern University Medical School; and lecturer and adviser on infant welfare, Dr. Walter H. O. Hoffmann, attending physician of the Children's Memorial Hospital.

INDIANA

Personal.—Dr. Paul T. Hurt, Indianapolis, recently won the annual physicians' and dentists' golf tournament, held at the Highland links, turning in an 83 gross score.——Dr. Clifford L. Bartlett, medical director of St. Joseph's Hospital, Mishawaka, has been appointed professor of pathology at the Union Medical College of Peking, China. He sailed from Seattle, September 16.

Hospital News.—Dr. H. N. Oliphant has purchased the Palmer Hospital, Frankfort, and has also been appointed chief surgeon of the Toledo, St. Louis and Western Railroad. Dr. R. F. Palmer, formerly owner of the hospital, died recently.——A hospital to be known as the Mercy Hospital and Nurses' Training School will be opened this month in Cincinnati, it is announced. Colored physicians and nurses will comprise the staff, and the training school will be for colored nurses only.——A nurses' home will be erected at St. Mary's Mercy Hospital, Gary, in the near future, at a cost of $100,000.——Structural work on the new Remy factory hospital building at Anderson has been completed.——A new children's ward is under construction at the Indiana State Sanatorium at Rockville. The new building will contain eighty beds, bringing the capacity of the hospital up to 200 beds.——The twenty-two room addition to the Methodist home at Warren was dedicated, November 1, with appropriate exercises.

LOUISIANA

Illegal Practitioners Found Guilty.—The New Orleans *Times* reports that Joseph B. and Walter W. Fife of Lake Charles were found guilty, October 21, of practicing medicine without licenses.

Bureau of Professions Organized.—At a meeting attended by physicians, attorneys, engineers, chemists, educators, architects, ministers and accountants, at the Association of Commerce, in New Orleans, October 26, a bureau of professions was organized, with Dr. William A. Lurie as first chairman. The bureau was organized to give professional men an opportunity to participate in the activities of the Association of Commerce, as a whole, and to function as a class so as to obtain the advantages of membership.

Fund for Education Established.—Dr. Luther Sexton, New Orleans, who some years ago established the Sexton Education and Benefit Fund with a donation of $100,000, has recently announced a further contribution of $225,000, as a perpetual endowment fund for the education of any member of the Sexton family. Dr. Sexton's purpose is to guard them against the hardships of his own youth, when, it is said, he followed the plow for some time in order to attend college. He has also contributed the sum of $10,000 each to the Methodist Orphanage, Jackson, Miss., the Methodist Orphanage, Tuston, and the Protestant Orphanage, New Orleans. Dr. Sexton is clinical professor of minor surgery at Tulane University School of Medicine.

MAINE

Woman Physician Goes as Missionary.—Dr. Mary F. Cushman, Farmington, has resigned from the board of registration of Maine. She will go to Central Africa as a missionary.

Construction on New Hospital Started.—Work has been started on the erection of the new hospital for the Sisters of Charity of Waterville. The institution will be four stories high and will be built at a cost of $500,000.

MARYLAND

Meetings.—A joint meeting of the Baltimore City Medical Society and the Maryland Cancer Committee was held, November 3, in Osler Hall, Baltimore, as an introduction to Cancer Week. A symposium on "Cancer as a Preventable Disease" was participated in by Drs. William H. Welch, Raymond Pearl, William T. Howard and A. W. Freeman, from the School of Hygiene and Public Health.

MASSACHUSETTS

Cambridge Tuberculosis Association.—At the annual meeting of the association held, October 10, Dr. Eugene A. Darling was elected president and Miss Louise W. Jackson, secretary.

Farewell Dinner to Dr. Faxon.—A dinner was given to Dr. Nathaniel W. Faxon, October 11, by his friends at the Massachusetts General Hospital, Boston, at the St. Botolph Club. He has given up his position as assistant administrator of the hospital to accept the position of director of the new Strong Memorial Hospital to be connected with the School of Medicine and Dentistry of the University of Rochester, N. Y. Dr. Faxon was presented with a cigaret case.

Warren Triennial Prize.—At a meeting of the trustees of the Massachusetts General Hospital, October 13, it was voted that two prizes instead of one be awarded this year, the first prize to be $500 and the second $250. This will not establish a precedent. There were twenty-two essays submitted from the United States and foreign countries. The first prize was awarded for the essay on "The Circulation in the Mammalian Bone-Marrow," written by Drs. Cecil K. Drinker, Katherine R. Drinker and Charles C. Lund, all of Boston. The second prize was awarded to Dr. James Mott Mavor of Union College, Schenectady, N. Y., for his essay on "The Effect of Roentgen Rays on the Nuclear Division.

Harvard University Appointments.—The following physicians have been appointed members of the administrative board, 1922-1923, of the Harvard University Medical School: Dean David Linn Edsall, chairman; Drs. Algernon Coolidge, Milton Joseph Rosenau, Harvey Cushing, Reid Hunt, John Lewis Bremer, Walter Bradford Cannon, Charles Macfie Campbell, Worth Hale, Simeon Burt Wolbach, Oscar Mendersen Schloss and Francis Weld Peabody.——The following elections and appointments of the president and fellows of Harvard University have been consented to by the board of overseers: professor of orthopedic surgery, Dr. Robert Gayler Osgood; clinical professor of oral surgery, Dr. Leroy Matthew Simpson Miner, and therapeutics, Dr. John William O'Connell.

MICHIGAN

Chiropractor Convicted.—It is reported that F. O. Logic, chiropractor, Iron Mountain, was recently convicted of practicing medicine without a license. He was instructed to stop practicing, and sentence was suspended until the next term of court, in January.

Detroit Academy of Medicine.—The academy was entertained at dinner in the Athletic Club, October 10, by Dr. Guy L. Kiefer, the retiring president. Following the dinner, he read a paper on "Industrial Medicine." Dr. Burt R. Shurley was elected president, Dr. William H. Morley, vice president, and Dr. H. Lee Simpson, secretary-treasurer.

Gifts to Wayne County Medical Society.—During the last year, the library of the county society has received 1,243 bound volumes and about 300 unbound numbers of valuable journals from Dr. W. P. Manton; 200 books from Mrs. H. W. Longyear; 400 from Dr. G. B. Lowrie; 300 volumes from Mrs. A. H. Steinbrecher, and 160 volumes from Dr. Ray Connor. Twenty physicians and ten institutions have also donated other books to the library. At the present time, the library contains approximately 15,000 volumes.——Dr. George Dock, St. Louis, recently presented the Wayne County Medical Society with two portraits, one of Dr. William Beaumont and one of Sir William Osler.

MINNESOTA

Health Committee Appointed.—The Minneapolis Medical Association has appointed the following physicians members of a committee of fifty whose purpose it will be to direct public health and public welfare work in the state: president, Dr. E. Starr Judd, Rochester; vice presidents, Drs. Theodore Bratrud, Warren, H. P. Ritchie, St. Paul, and G. H. Mesker, Oliver; secretary, Dr. Carl B. Drake, St. Paul, and treasurer, Dr. F. L. Beckley, St. Paul.

Personal.—Mr. Andrew Fullerton, surgeon to the Royal Victoria Hospital and clinical lecturer at Queen's University, Belfast, Ireland, delivered a Mayo Foundation lecture on "Experiences in the Practice of Urology," October 15.——

William G. Swann, D.Sc., spoke on "Structure of the Atom" before a meeting of the Hennepin County Medical Society, October 18.——Prof. August Krogh, professor of zoophysiology in the University of Copenhagen, delivered three lectures for the Mayo Foundation, Rochester, October 19, 20 and 21. ——Dr. Benjamin F. Simon, city health officer of St. Paul, has been authorized by the city council to visit eastern cities, to inspect their health systems.——Dr. Oscar E. Locken, Crookston, has been appointed chairman of the committee on public health of the League of Minnesota Municipalities.

Hospital News.—The new hospital of the Northwestern Medical and Surgical Association at Brainerd was formally opened with a big musical program, October 14-15. The old hospital building is being remodeled into the administration building and nurses' home, and will also contain the clinical laboratory and roentgen-ray equipment. Dr. Joseph Nicholson is president of the association, and Miss Mildred Lund will serve as superintendent of the institution.——Plans have been completed by architects in Bemidji for the new Methodist Hospital at Wadena to be erected by the Methodist Hospital Association of that city.——The contract has been awarded for the erection of a new cottage for women at the State Hospital at St. Peters. It will be erected at an approximate cost of $58,000.——The American Legion Hospital Association was incorporated in September. The incorporators are two Minneapolis and two St. Paul business men, and one Duluth and one Rochester man. They will erect a Legion hospital at Rochester.

MISSISSIPPI

Jury Frees Dr. Copeland.—Dr. Edward A. Copeland, Shaw, was recently freed on a charge of killing S. M. Wilkins, a dentist, at his office. The report of the grand jury, failing to return a true bill in the case, is regarded as a vindication of Dr. Copeland's part in the shooting. He maintained that he could give no reason for the attack which he says the dentist made on him, and pleaded that he was forced to kill him in self-defense.

MISSOURI

New Property for Medical Society.—The Jackson County Medical Society has entered into an agreement with the owners of a proposed office building at Hunter and Baltimore streets, Kansas City, by which the society will be given auditorium and library space free of rental for ten years, the society to endorse the building as a physicians' office building and approve the tenants. The property now owned by the society is to be rented, the income to be used for the maintenance of the auditorium and the library.

Missouri to Commemorate Mendel and Pasteur.—St. Louis University will hold exercises commemorative of the centenaries of Mendel and Pasteur on the evening of December 14, in the university auditorium. President Robison will preside at the ceremonies. The address on Mendel will be delivered by Prof. H. S. Jennings, Johns Hopkins University, and the address on Pasteur by Prof. Victor C. Vaughan, emeritus professor of hygiene, University of Michigan, and chairman, division of medical sciences, National Research Council.

Obstetrical and Gynecological Society.—The annual dinner of the Kansas City Obstetrical and Gynecological Society was recently held at the Hotel Lucerne, Kansas City. Dr. Roland E. Skeel, Los Angeles, president of the American Association of Obstetricians and Gynecologists, was the guest of honor. In addition to the fellows of the society, there were present: Drs. Caryl Potter and John I. Byrne, of St. Joseph, Linn B. Schofield and Oscar B. Hall, of Warrensburg, and Leslie Leverich and A. Elam Reeves, of Kansas City. Dr. Skeel delivered an address on "Premature Publication of Methods of Surgical Operations."

NEW HAMPSHIRE

Honor for Dr. Walker.—Dr. Charles S. Walker, Keene, was recently elected commander of the New Hampshire department of the American Legion.

Health Campaign.—It was recently announced by the city health officer of Manchester that a general committee of citizens will be appointed early in 1923 to conduct an intensive health program. This institute will include lectures, motion pictures and health exhibits.

New Hampshire Tuberculosis Conference.—At the annual meeting of the State Tuberculosis Association, held in Nashua, October 26, Dr. Arthur L. Wallace, Nashua, was elected president, and Dr. Robert B. Kerr, Manchester, executive secretary. Drs. Patrick J. McLaughlin, Nashua, and Charles Duncan, Concord, are on the executive committee. Governor Brown, the mayor of Nashua and Dr. Eugene R. Kelly, Boston, gave addresses at the meeting.

NEW JERSEY

School Children Poisoned by Sweets.—The poisoning of several schoolchildren in Jersey City, October 17, was found to have been caused by gelatin in candy, which had coagulated. Health Officer Hagen made a personal tour of all confectionery shops in the downtown section of the city, accompanied by several health board physicians, and sampled and analyzed the various confections. The children, it is stated, were able to return to school within a week.

NEW YORK

Personal.—Dr. William A. Groat, professor of laboratory diagnosis of Syracuse University, College of Medicine, was elected president of the Medical and Surgical Society of Western and Central New York, at the annual meeting held in Auburn, October 19.——Dr. Charles S. Prest, Brooklyn, was recently appointed secretary of the tuberculosis committee of the Brooklyn Bureau of Charities. Dr. Prest was formerly director of the health service, Atlantic Division of the American Red Cross.——Dr. Elias P. Lyon, dean of the University of Minnesota Medical School, spoke at the fifty-eighth annnal convocation of the University of the State of New York at Albany, recently.——Dr. Edward M. Bell, Troy, has been elected president of the Cohoes Medical Society, to succeed Dr. Henry B. Gillen.

Hospital News.—The New York Orthopedic Hospital and Dispensary has purchased a large house and grounds in White Plains. It is understood that this purchase is a step in carrying out the plans for the future expansion of the institution.——The contract has been let for the erection of a $200,000 addition to the Lawrence Hospital, Bronxville.——A campaign to raise $100,000 for the erection of a four-story building is being conducted by the Brooklyn Hebrew Maternity Hospital. The present hospital grounds have sufficient area to build a modern structure with accommodations for 300 patients, and this site will be utilized.——The Rochester Rotary Club has entered into a contract with the Infants' Summer Hospital, Rochester, for use of the hospital as a winter sunshine camp for crippled children convalescing from operations.——The Rochester General, the Highland and the Homeopathic hospitals were recently surveyed by Mr. S. S. Goldwater of New York, with a view to extension of their services. He submitted his report at a dinner, November 4, to which the clinical staffs, managers, directors and trustees of all three hospitals were invited. A campaign for funds to cover extensions of services will be conducted.

University News.—The first building for the new University of Rochester Medical School, a stow-story laboratory building, will be completed, November 15. Temporary offices of administration will be established in it. An appropriation of $1,000,000 has been made by the city government for the new municipal hospital, which will adjoin the Strong Memorial Hospital. They will have a combined capacity of 460 beds. The university is to furnish the professional staff and the city the nonprofessional employees, under a contract recently approved. Dr. Stanhope Bayne-Jones, associate professor of bacteriology at Johns Hopkins University, Baltimore, has been appointed professor of bacteriology at the new university, and Dr. George Washington Corner has been appointed professor of anatomy. They will assume their duties in September, 1923.——Foster Hall, the chemical laboratory of the University of Buffalo, designed to meet the needs of the electro-chemical, hydro-electric, iron and steel industries on the Niagara frontier, was dedicated, October 27, in connection with the installation of Prof. Samuel P. Capen of Washington as a chancellor of the university. Dr. Edgar F. Smith, president of the American Chemical Society, and Dr. Edwin E. Slosson, were speakers at the ceremony. The laboratory, erected at a cost of $1,000,000, was the gift of O. E. Foster of Buffalo.

New York City

New York Academy of Medicine.—The speakers who are expected at the Pasteur celebration of the New York Academy of Medicine are: Prof. Russell H. Chittenden and Drs. William H. Welch, Erwin Smith, Simon Flexner, Herman Biggs and W. W. Keen. The exhibition of books, photographs, medallions, manuscripts and other articles referring to the life work of Pasteur will be open to the public at

the New York Academy of Medicine for two weeks, commencing December 27. Public addresses will be given at the academy, Jan. 10, 1923. The library committee of the academy will be glad to receive material relating to the life of Louis Pasteur to be used for the celebration. Communications should be addressed to Mr. J. S. Browne, librarian. ——The anniversary discourse of the New York Academy of Medicine was delivered on the evening of November 2 by Prof. E. G. Conklin of Princeton University. His subject was "Problems of Organic Adaptation."——Dr. August Krogh, professor of physiology, University of Copenhagen, delivered the second Harvey Society Lecture at the New York Academy of Medicine, November 11, on the subject of "Nervous and Hormonal Control of Capillary Contractility."

Sale of Veronal and Analogues Regulated.—At a recent meeting of the board of health, a resolution was adopted amending Article 8 of the Sanitary Code by the addition of a new section, numbered 126, which reads as follows:

No Veronal (Diethyl-barbituric Acid), Veronal Sodium (Sodium Dimethyl barbiturate), Luminal (Phenly-ethyl-barbituric Acid), Luminal Sodium (the sodium salt of Luminal), Sulphonal (Diethyl-sulphone-dimethyl-methane), Trional (Diethyl-sulphone-methyl-ethyl-methane), or Teronal (Diethyl-sulphone-diethyl-methane), shall be sold at retail to any person in the City of New York, except upon the written prescription of a duly licensed physician.

The provisions of this Section shall apply to the sale at retail of any of the above mentioned drugs whatever may be the name under or by which the same may be called or known.

Site for Medical Center Secured.—The Joint Administrative Board of Columbia University and the Presbyterian Hospital has announced that the site for the new medical center has been transferred to the university and the hospital. The land site extends between One Hundred and Sixty-Fifth and One-Hundred and Sixty-Eighth streets from Broadway to the Hudson River. It is in excess of twenty acres, and is valued at $4,000,000. It is the gift of Mrs. Stephen V. Harkness and Edward S. Harkness. It was also announced that an agreement has been confirmed between the Presbyterian Hospital, Columbia University and Mrs. Harkness, as donor, for the transfer of a fund of $1,300,000 to Columbia University, for the endowment of educational and scientific work in the School of Medicine and the Presbyterian Hospital. An additional $1,000,000 has been given by Mr. Harkness toward the construction of the new Presbyterian Hospital, and $1,000,000 for the school of medicine. The Joint Administrative Board is preparing preliminary plans for a new Vanderbilt Clinic and a new Sloane Hospital for Women, which it is hoped will become a part of the medical center.

NORTH CAROLINA

Graduate Courses Planned.—Under the direction of the University of North Carolina Extension Division, plans for a graduate medical course to be offered next summer, were outlined before a meeting of the Buncombe County Medical Society, October 2. It is proposed to have six centers in which the course will be given, with headquarters at Asheville. Twelve lectures and twelve clinics will be given in each of the six places selected, covering a period of twelve weeks, and beginning in June, 1923.

District Medical Meeting.—The Ninth District Medical Society met in Morganton, October 11. Dr. J. W. Long, Greensboro, Dr. W. S. Rankin, secretary of the state board of health, Dr. L. H. McBrayer, in charge of the state's tuberculosis work at Sanatorium, and Dr. J. K. Hall, of the Westbrook Sanatorium, were among the visitors. This society embraces the counties of Davidson, Davie, Rowan, Iredell, Alexander, Catawba, Caldwell, Watauga, Mitchell and Burke. Since the meeting last year in Salisbury, both the president, Dr. A. G. Ramsauer, and the secretary, Dr. I. M. Taylor, have died. Dr. Harold H. Newman, Salisbury, was elected president and Dr. Vernon, secretary.

OHIO

Personal.—Dr. F. U. McQuillan, Toledo, has been appointed chief of the employment service of the U. S. Veterans' Bureau which has charge of obtaining positions for disabled ex-service men who have finished vocational training.—— Dr. Earl H. Baxter, Columbus, has been appointed instructor in pediatrics in the College of Medicine of Ohio State University.——Dr. Lester L. Taylor, Yellow Springs, has been appointed on a committee of the Ohio State Medical Association to make arrangements for an Ohio special train to the annual convention of the American Medical Association to be held in San Francisco in 1923.——Dr. George F. Thomas, Cleveland, recently returned from a trip to Europe. ——Dr. George W. Crile and Dr. Charles Hoover, both of Cleveland, were among the speakers at the Tri-State Medical Association in Peoria, recently.

OKLAHOMA

Personal.—Dr. Thomas W. Stallings spoke on "Removal of Infected Tonsils in Early Life" before the Tulsa County Medical Society, recently.——Dr. William E. Dicken, Oklahoma City, is reported seriously ill at a hospital in Pasadena, Calif.——Dr. Alexander S. Graydon, Idabel, while en route to Sulphur, October 7, was stricken with paralysis, affecting his entire left side.

Hospital News.—Miss Lela J. Martin has been appointed superintendent of the Mabel Dale Hospital, Yale.——Dr. John B. Leisure has recently opened a new hospital at Watonga.——The Sulphur Soldier Hospital was formally opened recently, with appropriate exercises. It will be operated by the U. S. Veterans' Bureau. It was erected at a cost of $180,000, and has accommodations for seventy-five patients. There are seven buildings in the group, including the administration building, the dining hall, quarters for the personnel, cottages, wards, home of the medical superintendent, nurses' home, and power and laundry plant. Dr. Barton H. Watkins, formerly connected with the U. S. Public Health Service in Arizona, is medical superintendent of the new institution.

OREGON

University Receives Rockefeller Endowment.—The sum of $50,000 has been received by the University of Oregon Medical School, Portland, from the General Education Board. This sum completes the first appropriation made by the foundation. The first instalment, made one year ago, was $113,000, which matched an equal sum appropriated by the legislature to build the main body of MacKenzie Hall, which has just been completed. This second appropriation is to add scientific equipment and apparatus for research and instruction. The new structure on Marquant Hill is already in use and will be formally dedicated in January.

PENNSYLVANIA

Health Board Employees with Colds Must Mask.—Health Commissioner Martin has ordered all employees of the state health department suffering from colds to wear masks over their faces and white gloves while on duty at the Capital, it was announced, October 24. The order stated that the movement was begun to break up the epidemic of colds among the departmental employees.

Hospital News.—The cornerstone of the new Homestead Hospital was recently laid, with appropriate exercises. It will be a three-story and basement building erected at an approximate cost of $200,000.——Dr. D. S. Newell will establish a hospital at Melcroft, to be erected at a cost of $40,000. ——Plans are being prepared for a million dollar building program for the Homeopathic Medical and Surgical Hospital and Dispensary at Pittsburgh.——Plans have been completed for an addition to the White Haven Sanatorium.——The third main building of the $1,000,000 plant of the Abington Memorial Hospital, created by a bequest of the late G. W. Elkins, founder of the institution, was thrown open for inspection at a tea, November 1. The building will be used as a nurses' home. The building formerly used for that purpose has been transformed for hospital uses and will be a private room section, while wards and additional private room facilities will remain in the original main building. The new building increases the capacity of the institution from eighty to 132 beds.

Philadelphia

Mütter Lecture.—Dr. James Ewing, professor of pathology at Cornell University Medical College, New York, delivered the 1922 Mütter lecture on surgical pathology, before the College of Physicians of Philadelphia, November 1. His subject was "The Principles of the Radiation Treatment of Cancer."

Medical Club Invites President Harding.—Drs. Ernest LaPlace, G. Oran Ring and L. Webster Fox went to Washington, October 25, to present an invitation to President Harding to be the guest of the Medical Club of Philadelphia on a date to be fixed by him. The President indicated his desire to attend the dinner and said his acceptance would depend on the progress of Mrs. Harding's convalescence.

Hospital News.—About 5,000 persons attended the laying of the cornerstone of the Lipkin Memorial Dispensary of Mount Sinai Hospital, October 22. This building was made possible by the gift of $30,000 by William Lipkin, one of the directors of the hospital, in memory of his parents. The trustees of the hospital announce that they have accepted the proffer of a memorial operating room pavilion from Mr. Jacob Biberman. This will be known as the Fannie Biberman Memorial Operating Pavilion, in memory of the donor's wife, and will consist of operating and sterilizing rooms, physicians' and nurses' wash and work rooms, and instrument and etherizing rooms, with accompanying facilities. It will occupy the entire fifth floor in the Fifth Street hospital building of the Mount Sinai Hospital. Dr. Albert S. Hyman is superintendent of the institution.

TENNESSEE

Health Officer Takes Over Sanitation Bureau.—Dr. Reese Q. Lillard, secretary of the state board of health, has taken over the work formerly handled by Dr. E. L. Bishop, head of the bureau of rural sanitation. Dr. Bishop was recently granted leave of absence in order that he might take advantage of a fellowship at Johns Hopkins University in the school of public health and hygiene.

TEXAS

Dallas Health Show.—The first exhibition of the kind held south of St. Louis will be the health show to be staged in Dallas, March 13-18, 1923, it has been announced by Dr. W. T. Davidson, director of public health. More than 100 exhibits, including moving mechanical models, illustrating the cause and prevention of disease as well as the laws of sanitation, will be shown. The show was one of the leading features at the recent Pageant of Progress at Chicago. William J. Keily of Chicago, vice president of the National Health Shows, Inc., who will give the exhibition in Dallas, has been to Texas to confer with Dr. Davidson in regard to the project.

VERMONT

County Medical Meeting.—At the annual meeting of the Windham County Medical Society, held in Brattleboro, November 2, Dr. John B. Adams, Boston, held a clinic at the Memorial Hospital, and gave an address on "Backache." Dr. Frederick L. Osgood, Saxtons River, was elected president, and Dr. Winifred H. Lane, Brattleboro, secretary-treasurer of the society.

VIRGINIA

Chiropractors Convicted.—K. W. and J. R. Adams, chiropractors of Winchester, were each fined $50 and costs, it is reported, October 9, for practicing medicine without licenses. They will appeal to the corporation court.

Physician Sentenced to Penitentiary.—Dr. A. J. Osborne, Blackwater, was sentenced in the district court at Big Stone Gap, recently, to one year and one month in the federal penitentiary. Dr. Osborne, it is reported, was charged with violation of the Harrison Narcotic Law. Three other physicians were arrested on the same charge, but none of them were convicted.

WASHINGTON

School Medical Inspection Measure Opposed.—At the monthly dinner of the Spokane Chamber of Commerce, October 25, the trustees unanimously went on record as opposing the enactment into law of referendum No. 13, the so-called school medical inspection measure which would make the examination of schoolchildren by school physicians optional with the parents.

WISCONSIN

Hospital News.—Work has been started on the new home for the Mauston Hospital. The institution will be a two-story and basement structure to be erected at a cost of $75,000.——The contract has been let for a hospital building to be erected at the Wisconsin School for Deaf at Delavan. It will be a two-story structure, costing $75,000.——The new building of the Lakeside Hospital, Rice Lake, which has been under construction for the last two years, will be dedicated in the near future, it is announced.——A modern school of nursing was recently opened at the Theda Clark Hospital, Neenah, under the direction of Miss Stewart, hospital superintendent.

CANADA

Public Health News.—On account of the large number of smallpox cases which have been discovered in the towns of Mimico and New Toronto, Ont., the public schools have been closed, and compulsory vaccination of all pupils has been ordered.——Increases in the number of smallpox, scarlet fever, measles and whooping cough cases are noted in the October health report just issued by the provincial department of health. As compared with October of last year, scarlet fever cases are double in number, while measles cases are ten times the number. More deaths are also noted from influenzal pneumonia.

University News.—The department of public health nursing is the latest to be added to the continually increasing number of departments and faculties at the University of Toronto. Three years ago, the Ontario branch of the Red Cross Society arranged with the University of Toronto to meet the expenses of this new department for three years. That period expires June 20, 1923, and at their meeting last week the board of governors decided, subject to the approval of the provincial government, to take over the department of public health nursing, July 1, 1923, as a regular university department. The course comprises eight months' work and is open only to graduate nurses. It is limited to fifty.

Hospital News.—A new maternity wing was dedicated last month at the General Hospital at Oshawa. It will be known as the Robert McLaughlin Memorial Wing and contains twenty-five rooms.——Construction work will soon be started on an addition to the St. Joseph Orphanage, Halifax, N. S., at a cost of $100,000.——Dr. J. J. Walter has been appointed superintendent of the Kitchener-Waterloo Hospital at Waterloo, Ont.——The Irish Protestant Benevolent Society is planning a campaign in connection with the proposed erection of a million dollar Protestant hospital in Hamilton, Ont.——The mayor of Kingston, Ont., recently laid the cornerstone of the new Kingston Isolation Hospital, in connection with the Kingston General Hospital. This building will be one of the most modern on the continent and will cost about $200,000.

Personal.—Dr. C. J. O. Hastings, medical officer of health for Toronto, recently addressed the Ontario Ice Association convention at Toronto, Ont., taking for his subject, "The Value of Ice to General Public Health."——Dr. Joseph Daly, Belleville, Ont., was honored by the Belleville Medical Association on the eve of his departure for Rochester, Minn., to take a position with the Mayo Clinic.——Sixty-three Canadian surgeons were made fellows of the American College of Surgeons at the conclusion of the annual Surgeons' Congress at Boston, last week. Among this number, twenty were from the Province of Ontario.——Dr. Sidney Russ, professor of physics in the Middlesex Hospital, London, England, recently addressed a meeting held in Montreal, Que., under the joint auspices of the Medicochirurgical Society and the McGill University Chapter of the Research Society of Sigma Xi. Dr. Russ described laboratory experiments in the Middlesex Hospital, particularly in the treating of tumor tissues with roentgen rays and radium.

GENERAL

Federation for Child Study.—The annual meeting of the federation was held in New York, November 1. Dr. Constance E. Long of London, England, former president of the Medical Women's Association, delivered an address on "Mary Rose: A Study of the Infantile Personality."

Conservation of Vision Convention.—The eighth annual meeting of the National Committee for the Prevention of Blindness will be held in the Russell Sage Foundation Building, New York, November 23. Stephen S. Wise will give the annual address: "What Is and Ought to Be the Attitude of the Public Toward the Blindness Prevention Movement?" Miss Helen Keller, honorary vice president of the committee, will attend the meeting.

Rockefeller Institute Winter Program.—The hospital of the Rockefeller Institute for Medical Research, New York, confines its work to selected cases that bear on a limited number of subjects chosen for investigation. Bulletins are published from time to time giving notice of subjects chosen, in order that physicians may refer suitable patients to the hospital. No charge is made for treatment, room, board or other services. The following conditions will be the subject of study in the hospital this winter: acute rheumatic fever, nephritis, chickenpox, acute pulmonary infections and cardiac disease.

Office Administration Bulletin Issued.—The federal children's bureau of the Department of Labor recently issued a

report on office administration for organizations supervising the health of mothers, infants and children of preschool age. It was prepared in answer to requests for information on such organizations, and comprises the summary of observation of 200 agencies in both large and small communities. The report deals with selection of and training of staff, methods of organization, office equipment, planning case records, filing, financial administration and publicity methods, and has a bibliography and record forms appended.

Personal.—Prof. Frederick Belding Power, U. S. Bureau of Chemistry, has been awarded the Fluecklinger gold medal by the Society of Swiss Chemists for "invaluable work on alkaloids and ethereal oil."——Dr. Andre Majewski, a laryngologist of Warsaw, arrived in New York, October 22, on his way to Boston.——Dr. John Emil Cox, formerly of Memphis, sailed on the White Star liner *Celtic*, October 21, for Liverpool. He is going to Moscow to work with the American Relief Administration in the distribution of $7,600,000 worth of medical supplies in the famine districts of Russia. With him are Dr. John F. Stack, Boston, and Dr. W. E. Hurley of Brooklyn.

Child Welfare Work.—The Children's Bureau of the Department of Labor issued a directory this week, stating that there are 861 local child health agencies in the United States. These agencies, the bureau announced, are engaged in the promotion of child health through maternity care, infant care and the care of the child of preschool age. Greater New York leads the nation with ninety such institutions. Other cities included in the list with more than one agency are: Los Angeles, 2; Oakland, Calif., 3; San Francisco, 5; Washington, D. C., 4; Chicago, 11; Boston, 18; Detroit, 4; Minneapolis, 6; Rochester, N. Y., 4; Syracuse, N. Y., 4, and Milwaukee, 6.

American Red Cross Activities.—Recent calculations have estimated that the American Red Cross will have to spend between $3,000,000 and $5,000,000 for relief of the Near East war victims. The budget for the fiscal year 1922-1923 reads:

Assistance to disabled ex-service men and women	$3,030,692
Assistance to 3,600 Red Cross chapters	1,293,240
Disaster relief	750,000
Service to Army and Navy	306,300
Assistance to other organizations	200,000
Other activities in the United States	180,406
Medical and hospital supplies for the American Relief Administration in Russia	1,884,044
Completion of relief operations abroad	1,452,032
Assistance to League of Red Cross Societies	200,000
Management	493,154
Total	$9,789,868

LATIN AMERICA

Tribute to Coni.—A public subscription has been opened in honor of Dr. Emilio R. Coni, of Buenos Aires, the hygienist, sociologist and eugenist, and long a leader in all movements for public health and welfare. The fiftieth anniversary of his entering on his professional career is approaching, and it is proposed to present him with an endowment on that occasion. The appeal for subscriptions is signed by the president of the Argentine senate as vice president, and a number of the senators, nearly all the professors in the universities of Argentina, hospital physicians and pharmacists. The appeal states that Dr. Coni's entire life has been consecrated to the welfare of others, and he is now at an advanced age and in restricted circumstances, which are the more distressing on account of an eye affection that prevents his continuing his usual activities. It is simple justice to render this public tribute to his half century of effort to place Argentina in the lead in public welfare work. His attendance at international gatherings has made him friends in the United States also.

Personal.—Prof. M. Chiray, of Paris, who was one of the representatives of France at the Brazilian Centennial celebration, is now in Buenos Aires, where he is to speak on deficiency diseases and intoxications.——Dr. C. Heuser, of Buenos Aires, has been elected corresponding member of the British Association for the Advancement of Radiology and Physiotherapy.——A bust of the late Prof. J. J. Naón was recently unveiled in the medical school at Buenos Aires.——Prof. M. de Medeiros has been appointed to the chair of general pathology at the University of Rio de Janeiro. The *Folha medica* quotes his remark that, by the irony of fate, he was appointed by the system which he has been striving to abolish.——Prof. A. Bianchi, of Parma, is lecturing at Buenos Aires, his main theme being "The Physical Methods of Diagnosis." He is said to have originated the phonendoscopic method of outlining and examining internal organs.——Prof. M. R. Castex, of Buenos Aires, one of the three directors of the *Prensa Médica Argentina*, left for Europe on the *Avon*.——The *Repertorio* of Bogota relates that Dr. Daniel Molano has returned to that city, after an extended trip to the United States. Dr. V. Peñuela Rodriguez has also returned after a trip to Europe and the United States.——Dr. G. E. Munnich, of Chile, arrived recently in New York on the *Santa Luisa*.——The *Anales* of Guayaquil mentions the appointment of Dr. F. Barbotó to the chair of forensic medicine left vacant by the resignation of Dr. W. Pareja, who retired from the position on account of his duties as director of the national public health service. Dr. M. H. Alcivar has been appointed rector of the university for a five-year term. He is one of the editors of the *Anales*.

FOREIGN

Chesterfield Lectures.—The Chesterfield Lectures, founded in 1895 to promote the study of dermatology, are given every Thursday at St. John's Hospital for Diseases of the Skin, London. They are free to medical practitioners.

Alfred Simonini Prize.—Prof. R. Simonini has founded an annual prize, in memory of his son, at the University of Modena. It is to be awarded to the medical student who distinguishes himself by special research during the course in pediatrics.

Medical Exhibition.—The London Medical Exhibition, the thirteenth of its kind, was held October 2-6, in London, England. Some 150 stands displayed drugs, chemicals, medical and surgical instruments and appliances, furniture and other adjuvants to treatment. The *Lancet* states that the exhibition was noteworthy for the successful efforts of British manufacturers to meet the progressive needs of medicine.

Research on Endemic Pellagra in Italy.—Question blanks have been sent out to all health officers in Italy to collect data in regard to the number and condition of the pellagrins in the country, Dec. 31, 1922, and the deaths from this cause or from intercurrent disease during the year. There are fourteen items to be reported on, including the measures for prophylaxis and treatment.

Increase in Venereal Disease.—The *Münchener medizinische Wochenschrift* quotes the statistics published by the Berlin sickness insurance office to the effect that disability from venereal diseases was recorded in 1918 for 659 men and 6,782 women; but, in 1921, the respective figures were 2,055 men and 14,757 women. Those treated as private patients and those whose earning capacity was not impaired are not included in these figures.

Personal.—On the occasion of the celebration of the 150th anniversary of its foundation, the Danish Medical Society elected to honorary membership Prof. A. Eiselsberg of Vienna, Prof. M. Rubner of Berlin, Prof. H. Sahli of Berne, and Professor Kümmel of Hamburg.——An album was recently presented to Professor Vicini of Rimini, containing congratulations on the completion of the surgical pavilion at the hospital, signed by the members of the chamber of commerce, merchants and others, with a tribute to his initiative and efforts.

Dermatology and Syphilology Congress.—Notices are being sent out to call attention to the second Congress of French-Speaking Dermatologists and Syphilologists. It is to be held at Strasbourg, July 25-27, 1923, in connection with the Pasteur centennial celebration in July. It will be preceded by a cancer congress and be followed by a leprosy congress. For particulars, apply to Professor Pautrier, 2 Quai St. Nicolas, Strasbourg. Four topics have been appointed for discussion, "Desensitization in Skin Diseases"; "Nevus Cancers"; "Principles for Treatment of Syphilis in the Prehumoral Stage," and "Comparative Study of Modes of Administration of Drugs in Treatment of Syphilis."

Albert Neisser Prize.—The *Münchener medizinische Wochenschrift* relates that the German Society to Repress the Spread of Venereal Diseases announces the foundation of a prize of 2,000 marks to be awarded every second year for the best work during the preceding two years on some aspect of the fight against venereal diseases, either from the medical, medicolegal, economic or ethical standpoint. The years 1919 and 1920 are to be considered in awarding the first prize; it is to be conferred on the birthday of Albert Neisser. Further details can be obtained from the secretary of the Deutsche Gesellschaft zur Bekämpfung der Geschlechtskrankheiten, Wilhelmstrasse 45, Berlin W. 66.

Society News.—The Italian Society of Urology held a congress in Florence, October 24. Professors Gardina and

Lasio discussed the remote results of prostatectomy.——The nineteenth Italian Congress of Surgery was held in Florence, October 21-25. Professors Alessandri, De Gaetana and Zabelloni were the speakers.——The Lettsonian Lectures on Carcinoma of the Rectum will be delivered before the Medical Society of London, in February and March, 1923, by Dr. William E. Miles.——Dr. A. G. Wells has been elected president of the West London Medico-Chirurgical Society, to succeed Sir Lenthal Cheatle. The Keetly medal was presented to Sir Lenthal Cheatle in commemoration of his year of office.

Zwaardemaker's Silver Jubilee.—The close of twenty-five years of teaching and research in physiology by Prof. H. Zwaardemaker was celebrated by friends and students at the physiology institute of the University of Utrecht. His contributions to science include additions to our knowledge of the organs of sense, of the transformations of energy, and of the importance of potassium for the automatism of the organs. He is now studying, in particular, physiologic radioactivity, and how to help the deaf. He was presented with a *feestbundel* of ninety-five scientific articles from international sources, which, with an introductory article describing his life work, form a volume of 591 pages of the Netherlands *Archives of Exact and Natural Sciences*. His portrait was also presented, to be installed in the institute.

The Netherlands Council on Pharmacy and Chemistry.—The *Nederlandsch Tijdschrift voor Geneeskunde* remarks that the Netherlands "Pharmacotherapeutisch institut," which is modeled on the Council of the American Medical Association, is "facing the guillotine of governmental economy." Our exchange urges physicians to contribute to its support by subscribing for the bulletins it issues. It adds a summary of the article by Prof. W. A. Puckner in the *Deutsche medizinische Wochenschrift*, No. 40, in which he describes the aims and the work of the Council on Pharmacy and Chemistry of the American Medical Association. It comments on the effort of the Council to have a few drugs taught thoroughly instead of a large number taught superficially, and states that the book "Useful Drugs" is in use as a textbook in a number of medical schools.

Tributes to Pasteur.—The Netherlands Medical Association appointed a committee to plan the celebration of the Pasteur centennial, and arrangements have been made for a memorial meeting at Amsterdam in the opera house, November 25. Addresses will be made by specialists in medicine, chemistry and microbiologic technic. Dr. A. Calmette of the Pasteur Institute at Paris is also to deliver an address. In addition to this main meeting, different localities are planning scattered local meetings, on or near that date, to pay tribute to Pasteur's work and its import for the various sciences and public health. Our exchanges from all over the world bring similar notices of scientific gatherings planned in tribute to Pasteur. Calmette delivered by request an address at Copenhagen recently, speaking from the same desk at which Pasteur stood in 1884 at the international medical congress when he made his epochal announcement in regard to rabies.

The International Research Council.—The *Nederlandsch Tijdschrift* brings an account of the recent conference at Brussels of the International Research Council. Five new "unions" were organized as constituent parts of the Council. One is for biology and one for the medical sciences. Some wished to combine these two in a single union, but it was finally decided to keep them separate, restricting the biology union to pure physiology, while the medical sciences union is for applied physiology. The Union internationale des sciences médicales, thus organized, has its legal seat at Brussels, and the officers include Widal of Paris and Gibson of Baltimore, with Nolf of Liége as the secretary. The American representatives in the Council urged modification of the by-laws so that the triennial meetings of the Council could be held in different countries, while retaining Brussels as the legal seat. But this was voted down for the present.

Deaths in Other Countries

Dr. **Richard F. Williamson**, formerly a resident of San Diego, Calif., at Tonbridge, England.——Dr. **J. W. Gómez**, formerly professor in the University of Córdoba and member of the legislature.——Dr. **R. de Persiis**, chief of the hospital at the capital of Somalia since 1911. The white residents in the colony have raised a fund for a new pavilion for the hospital as a memorial to him. His colleague in the work, Dr. **L. Doglia**, has died also.——Dr. **P. A. Bossers** of Breda, Holland.——Dr. **J. Neuberger**, a laryngologist and otologist of Frankfort on the Main, member of the board of health, aged 50.——The *Anales* de la Sociedad Médico-Quirúrgica del Guayas mentions the death of Dr. **Rosa E. Salcedo**, formerly professor of obstetrics at the University of Guayaquil, at an advanced age.

Government Services

Hospital Aeroplane in Service

A new white hospital aeroplane, designed and built at McCook Field, has been received at the primary flying school at Brooks Field, Texas. This aeroplane is a remodeled Curtiss J.N-6 equipped with a Wright motor, 180 horsepower. The fuselage is enlarged to accommodate a recumbent patient. A seat facing the patient, between the patient and the pilot, has been installed for an attendant. The aeroplane with full load has been given several test flights by pilots from the field, and it is reported that, although it is an ideal ambulance aeroplane so far as the patient's comfort is concerned, it is loggy, nose heavy and slightly overpowered.

Red Cross Activities

Approximately $9,000,000 will be expended by the American Red Cross for the relief of former service men disabled during the World War, according to an announcement made by John Barton Payne, national chairman of the Red Cross. On Armistice Day, November 11, when the American Red Cross opens its annual roll call for membership, there will be under treatment in government hospitals more than 25,000 veterans. In the opinion of the Surgeon-General of the Army, the peak of disabled men under reconstruction will not be reached until 1926.

Antivivisection and the Chemical Warfare Service

Officials of the War Department's Chemical Warfare Service have started a campaign of opposition against the bill recently introduced in Congress, prohibiting officers of the Army and Navy from using living animals for experimental work. Col. Harry L. Gilchrist, chief medical officer of the Chemical Warfare Service, in explaining the stand of the service against the measure, declared that it would practically end the research work done by his bureau. He said: "Under that measure we could not even send canary birds down into the mines to determine what effect gas would have upon them. In the recent disaster in California where forty-seven miners died, the authorities would have been helpless if they had not been permitted to use canaries in advance of the rescue parties. Instead of canaries it would have been necessary to send persons into the mines and the danger of death to them would have been great." According to the proposed bill, the use of live animals to test gases is forbidden, and a fine of $500 or one year in jail is fixed as the penalty for its violation.

U. S. Veterans' Bureau News

District No. 10 has prepared and issued a booklet on "Training Facilities," giving available information covering opportunities and places for training in that district. Other booklets, on "Trade and Industrial Occupational Analysis"; "Commercial Objectives," and "Agricultural Objectives" have also been distributed in bulletin form by this district.——Brownleigh Park, Goshen, N. Y., has been leased by the U. S. Veterans' Bureau for a vocational school. This property is located in the mountains of Orange County near New York. It will afford training for about 300 ex-service men. Shop training, commercial and agricultural courses will be provided.——Show cards, posters and radio were some of the means used to arouse interest in the work of the bureau at the recent California Industries Exposition in San Francisco. Working exhibits operated by trainees included an art-copper worker busy at his bench, a radio operator and other vocational workers.

Distinguished Service Medal to Pool

Dr. Eugene H. Pool, New York, former lieutenant-colonel, U. S. Army, has been awarded a distinguished service medal for valuable service in the care of wounded in hospitals at the front during the St. Mihiel and Meuse-Argonne offensives in France.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 16, 1922.

The Dangers of Psychanalysis

In his presidential address to the Medical Society of London, Lord Dawson described psychanalysis as an "exploratory operation on the mind," which, if it did not accomplish good, might be fraught with harm. The mind did not always heal by "first intention"; baneful influences might enter. The treatment should be undertaken only by workers with specialized training which ensured skill, restraint and good judgment. These conditions were often not fulfilled. Too many practitioners were fanatics who had eyes for nothing outside their narrow cult. The duration of the treatment was long and uncertain, extending into months or even years. There was a great strain on the mind of the patient who lived, with a quickening sense of his own abnormality, and, if the treatment did not suit him, the danger of doing him harm was intensified. The analyst could not control with precision the range of his operation; beyond the happenings he wished to induce, others might result which were unsought and detrimental. Psychanalysis induced and aggravated introspection and was liable to produce morbid ideas. The laying bare of the unconscious mind—both the process and the result—injured some sensitive subjects and did harm by debasing them in their own estimation.

The dominant position asserted for the primitive sex impulses in the causation of repressions aggravated the difficulties of the treatment. All physicians knew how difficult was the handling of the sex neuroses and aberrations, and how quickly by introspection sex monopolized attention, distorted judgment and perverted conduct. The difficulties on the educational side where youth was concerned were even greater. The analyst who held the freudian view that the primitive trends of the mind are mostly sexual in origin cannot but be influenced by that bias in the treatment of patients, who likewise would feel its reflected influence. Lastly, there was the factor in treatment termed "transference," which meant that emotions and fantasies awakened by analysis were detached from their original associations and reincarnated in the analyst, who thus became a partner in the life of the patient. Was not such a relation of physician to patient putting too big a strain on human nature, and might not positions of danger be provoked?

The Smallpox Menace

Thanks to the concessions made by parliament to "conscientious objectors," only 40 per cent. of children in this country are now vaccinated. Hence, the anxiety with which outbreaks of smallpox are regarded. In a period of three weeks, fifty-eight cases have been reported, of which twenty-five have occurred in one district of Derbyshire. A few years ago, an outbreak in Nottingham gave rise to 150 cases. So far, prompt isolation and the vaccination of "contacts" have saved us from an epidemic.

Health of Schoolchildren

The annual report for 1921 of Sir George Newman, chief medical officer of the board of education, has just been published. A great reduction in uncleanliness in schoolchildren is reported. In London, the presence of body vermin in children attending school has been reduced almost to the vanishing point, and other cities show a similar change. There has been a corresponding reduction in the number of cases of ringworm, scabies and other skin diseases. On the other hand, the proportion of cases of heart disease remains high. School physicians are urged to look for the existence of rheumatism. All children suffering from or suspected of rheumatism should be noted, for reexamination, and those with functional or organic disease of the heart should be kept under medical observation. The latest number of "exceptional children" of school age is 164,000. Of these, the blind number 58,000, the feebleminded, 31,000, the tuberculous (pulmonary), 2,000, cripples (tuberculous), 13,000, and cripples other than tuberculous, 23,000. With regard to the cost of the school medical service the average cost of inspection and treatment for each child varies from $1 to $1.50 in different areas. During the year, sixty million meals were provided for necessitous children.

A Degree in Pharmacy

In this country, a pharmacist has to go through a prescribed course and pass an examination, but there is no degree in the subject. Mr. H. J. Waring, vice chancellor of the University of London and surgeon to St. Bartholomew's Hospital, at the opening of the eighty-first session of the school of pharmacy, suggested that pharmaceutic chemistry should be made the chief subject of a science degree. This proposal has given rise to discussion in pharmaceutic circles. In a press interview, Prof. H. Greenish, dean of the school of pharmacy, said that the status of the pharmacist would be greatly improved, if opportunity were given for the taking of a degree. Mr. Waring also remarked that the British Pharmacopoeia could be written down to a quarter or even a tenth of its present size without loss to the community, and with gain to the pharmacist and physician. Asked what was wrong with the pharmacopeia, the dean said the volume was very bulky, and many modern physicians were of opinion that it could be materially revised as regards a number of drugs. Many of the drugs contained in it were not much used in modern medicine and could be dispensed with.

Bacteriology of Canned Meat and Fish

The outbreak of botulism, reported in previous letters (THE JOURNAL, September 16, p. 782; October 28, p. 1531), and recent outbreaks of other forms of food poisoning (due to members of the Gaertner group), render opportune the publication of a report on the bacteriology of canned meat and fish by Dr. W. G. Savage, Mr. R. F. Hunwicke and Mr. R. B. Calder, which has been issued by the food investigation board of the department of scientific and industrial research. The investigators found that yeasts, though plentiful in tinned milk and fruit, scarcely ever occur in tinned fish or meat. The presence of molds is evidence of air access, but they do not cause "blowing" of tins or extensive decomposition of meat, although they make the food unsalable. Anaerobic bacilli were looked for in every sample tin and were found in twenty-seven—nine meat tins and eighteen fish tins. Seven strains corresponded with *B. sporogenes* and twelve with *B. rauschbrand*. The former type of organism was found capable in pure culture of producing putrefactive decomposition in canned meat, with obtrusive "blowing" of the tin. The latter caused gas development, and, if given time, it led to pronounced decomposition. It appears that obligate anaerobes, if they get a chance to grow, always produce profound changes in the food. Ordinary sporing aerobic bacilli are of much consequence because of their wide distribution in canned foods, their resistance to heat, and the ability of most of them to break down proteins. Most of them were found to be widespread saprophytic bacteria devoid of any pathogenic properties. Their presence, even when proteolytic, was not evidence of unsoundness. Nevertheless, in special circumstances, they may be the cause of unsound condition of the food. Small leaks, permitting access of air

might supply the oxygen necessary for their growth and enable them to multiply and decompose food.

The factor of access of air assumed greater importance as the inquiry went on; but, from time to time, strains of aerobes were encountered which grew well under anaerobic conditions. These sporing aerobes were found widely even when the contents of the tins were perfectly good. Although most of them readily decompose proteins, they do not do so in hermetically sealed tins, because the supply of oxygen is inadequate. Some—possibly a majority—can multiply under strict anaerobic conditions, but growth is slight, far less than when oxygen is available. Under these conditions, they do not cause decomposition. Hence, the importance of a leak in a tin. Micrococci were present in about 23 per cent. of the samples. Most of them were diplococci, but staphylococci and streptococci were also isolated. Micrococci played no part in causing unsoundness.

Throughout the investigation, no bacteria of the food-poisoning types were detected. The view is expressed that minute leaks in tins act rather as sources of oxygen which light up and set into activity dormant germs already present than as sources of infection. Sound samples were comparatively unsterile. Of seventy-six perfectly sound shop samples, forty-seven were not sterile, but this was almost wholly due to sporing aerobic bacilli, thermophilic bacilli and micrococci. These seem to be survivors of bacteria originally present and not invaders through leaks. They do not injure the food because they multiply under the conditions. The moral for the manufacturer who wishes to secure a minimum of spoilage is that he must do five things: obtain his food products as fresh as possible; tin them as speedily as possible under conditions of great cleanliness; treat his products so as to secure the presence of a vacuum; employ the right "processing" temperatures, and use good quality tinplate and efficient tin-closing methods.

PARIS

(From Our Regular Correspondent)

Oct. 20, 1922.

The Sixteenth French Congress of Medicine

Among the topics on the program of the sixteenth French congress of medicine, there are two that would seem to be of particular interest to American readers. These are: (1) the differential diagnosis of gastric and duodenal ulcer, and (2) preventive and curative treatment of deficiency diseases.

THE DIFFERENTIAL DIAGNOSIS OF GASTRIC AND DUODENAL ULCER

Dr. E. Enriquez and Dr. Gaston-Durand assigned a very important place to the progress made in America, especially, in roentgenologic equipment and technic, whereby the problem of the diagnosis of duodenal ulcer has been transformed. Duodenal ulcer is more frequent than gastric ulcer. "Hypersthenic dyspepsia" often conceals an ulcer; but all cases of prolonged and recurring hypersthenic dyspepsia are not associated with ulcers. A certain proportion of such cases are of a purely reflex nature and point to a distant lesion, most frequently cholecystitis or appendicitis. Contrary to current opinion, hemorrhages (hematemesis, melena) are late and inconstant signs of ulcer. The authors agree with Moynihan in considering these symptoms as complications. Likewise, occult hemorrhages have only a very restricted diagnostic value in ulcer. In fact, for the diagnosis of ulcer in the incipient stage, the clinical elements and their various modes of expression have only a presumptive value, not only as regards the affirmation of its existence but also with respect to its localization. A roentgenologic examination makes it possible to change to probabilities—sometimes to absolute certainties—the presumptions as to the existence and as to the seat of an ulcer. But, while for the diagnosis of gastric and pyloric ulcers roentgenography continues to be the most practical, the most complete and the least burdensome method, the method of serial roentgenography affords now the possibility of securing precise information. This method of exploration gives, furthermore, precise information in regard to the anatomic relations of the duodenum with the neighboring organs. Thus it throws new light on the diagnosis, so often difficult, of such affections as cholelithiasis, cholecystitis, periduodenitis and epiploitis.

Drs. C. Saloz, A. Cramer and G. G. Moppert compared the clinical pictures of the three kinds of ulcer: of the lesser curvature, the pylorus and the duodenum. They hold that, with respect to their habitual chronic form, we may group together ulcers of the lesser curvature and true duodenal ulcers, on the one hand, and set over against them ulcers of the pyloric region. The first group have in common a quiet evolution in the incipient stage, a large proportion of callous types, the tendency toward hemorrhage, the original size of the stomach bordering on the normal, pain at onset sometimes with very violent paroxysms, and the possibility of being diagnosed by roentgen rays by direct signs. They may be divided also into hidden and masked ulcers. Ulcers of the pyloric region, however, manifest themselves at once, are seldom hemorrhagic, the size of the stomach is much increased, pain appears late, and they are revealed by roentgenography only by indirect signs. Their symptomatology is generally frank, even in the very young and the aged, for which reason they are not often wrongly diagnosed. Pyloric spasm creates in all these varieties of ulcer a common symptomatic relationship, which manifests itself in the form of hypersecretion and retarded evacuation. Stasis and antiperistalsis are alone peculiar to the pylorus.

Duodenal ulcer is distinguished from ulcer of the lesser curvature by less prolonged tolerance on the part of patients, a painful spot at the right, more marked hyperacidity and hypersecretion, less tendency to profuse hemorrhages, direct roentgenographic signs in the duodenum, and indirect roentgenographic signs in the stomach. In considering the diagnostic value of these two syndromes that help to fix the localization, the clinical signs furnish only presumptive evidence; the element of certainty is introduced by roentgenography.

There are three important symptoms that will aid greatly, before any general examination is made, in diagnosing the site of an ulcer: Hematemesis points rather to an ulcer of the lesser curvature; melena indicates a duodenal ulcer, and vomiting in association with stasis is evidence for an ulcer of the pyloric region.

The diagnosis of the nature of certain ulcerations (tuberculosis, syphilis and traumatism) can be only hypothetic. It is impossible to differentiate the two stages of an ulcer-cancer. The first stage, in which the ulcer evolves, is confounded very frequently, in its clinical aspects, with the second stage, in which the ulcer becomes malignant.

Dr. René Gaultier (Paris) held that the diagnosis of duodenal ulcer should not be confined to the findings elicited by serial roentgenography. The duodenum, he explained, has a semeiology all its own: no loss of appetite (sometimes an abnormal appetite), pain about the umbilicus and on the right side just below the umbilicus, sense of heaviness, a paroxysmal colic arising three or four hours after meals, the rare occurrence of vomiting, the frequency of regurgitations of a thready, viscous fluid, and abdominal tympanism sometimes localized in the duodenal region constitute a dyspeptic syndrome sufficiently significant to be easily differentiated in certain cases.

Dr. Feissly (Lausanne) took Enriquez and Durand to task for underestimating the diagnostic value of occult hemor-

V. 192

rhages, in view of their great frequency in active ulcers. If these cases are examined by the Dnapper method, which consists in the spectroscopic determination of hemochromogen and is very sensitive—the presence of 1.5 c.c. of blood mixed with the feces during the twenty-four period can be discovered—a very valuable factor is added to the objective signs. Serial roentgenography marks great progress, but only on the condition that the position in which the ulcer is most likely to be found in a given case is determined in advance. The position will vary quite materially in different subjects. While it is true that ventral decubitus, with a slight inclination to the right, offers the maximum of results, it must be recalled, nevertheless, that right lateral decubitus with laterolateral application of roentgenography is indispensable to bring the duodenum into view in numerous cases of hypertonic stomach.

According to Dr. Cade (Lyons), the finding of a painful point in the diaphragm or in the right side of the neck will point toward cholecystitis, while gastroduodenal ulcerous lesions give rise quite frequently to a painful point in the left side of the neck.

Dr. Roch (Geneva) called attention to two substances that can be conveniently utilized to aid in the diagnosis of gastralgia: colloidal aluminum hydrate, which "adsorbs" hydrochloric acid and is efficacious in treating patients with hyperacidity, and benzyl benzoate, which acts as an antispasmodic and improves the condition of spasmophilic nervous subjects without ulcer or disturbances of secretion.

According to Dr. Roger Glénard (Vichy), the differential action of diathermy on duodenal ulcer pains and on the pains associated with cholelithiasis will sometimes aid greatly in their diagnosis. Diathermy has seldom any effect on duodenal ulcer, but in complicating biliary colic the results are extremely favorable, as appears from the observations of Aimard, the champion of the method, who has applied it in Vichy on more then 500 patients.

Drs. Chiray (Paris) and Blum (Paris) emphasized the value of duodenal intubation for the differential diagnosis of duodenal ulcer and cholelithiasis. The green color of the returned liquid, its appearance like "purée de pois" (mashed pease), and the presence of numerous shreds of mucus are frequent signs of cholecystitis from gallstones. Either in suspension in the liquid or enveloped by mucus, many small black grains are found which they term calculins. Studied from a chemical and a histologic point of view, these calculins seem to be formed of a central core of cholesterin, together with a slight amount of pigment (calcium bilirubinate chiefly) and certain other elements (bile salts, epithelial cells, etc.).

According to Dr. Verhoogen (Brussels), examination of the stomach contents (previous fasting) with the Einhorn tube, is an excellent means of localizing an ulcer. When the tube brings up blood almost unmixed, which is seen to change gradually, and when, after the pylorus is passed, a golden yellow fluid emerges, a gastric localization may be assumed. Inversely, the presence of gastric secretion, unmixed with blood, in the stomach and the presence of blood in the duodenum will incriminate an ulcer of the latter region.

Dr. Gaston-Durand replied that the Einhorn stomach tube had not given Enriquez and himself conclusive results in investigating hemorrhage. In fact, hemorrhage in gastric and duodenal ulcer is not sufficiently frequent to permit reliance on this means of localization. Then, again, there may be hemorrhage in both the stomach and the duodenum in subjects suffering from duodenal ulcer or in patients with periduodenitis without ulcer.

DEFICIENCY DISEASES

Maladies de carence (from *carere*, to lack)—the deficiency diseases of American and English writers—constitute today a vast chapter of medicine, although it is one that has been only partially investigated. There is no general agreement as yet on the definition of these diseases. The definition given by two essayists, Profs. E. Weill and G. Mouriquand (Lyons), was strongly criticized by the third essayist, Dr. F. Rathery, assistant professor of the Faculté de médecine of Paris.

As Weill and Mouriquand conceive of them, deficiency diseases are affections due not to an infection, an intoxication or autointoxication, as ordinarily understood, nor to a genuine inanition or to a simple exclusive or restricted diet, but to the lack *(carence)* in the food of a substance or of a group of substances (possibly even of a certain special physicochemical condition in the food, referred to sometimes as a "living" condition) which are necessary in minimal portions for healthy nutrition. The vitamins belong to this group of indispensable substances, but the avitaminoses are not, as commonly supposed, the only deficiency diseases.

Rathery takes a wider point of view. It seems to him impossible to separate into two distinct groups the indispensable elements of a normal diet, the absence of which would produce different affections—placing in one group the albuminoids, the fats and the carbohydrates, and in the other, the "mineral substances" referred to by Weill and Mouriquand. There is a solidarity in the elements of a normal diet, and the content in carbohydrates, protein and fats is closely related to the quantity of vitamins furnished. As regards the vitamins, man requires the three varieties: A, B and C. The vitamins play with respect to each other, to a certain extent, a supplementary rôle; that is, superabundance of one has the effect of counteracting the insufficiency of another and preventing the manifestation of signs of a specific avitaminosis. There are morbid conditions occasioned by the lack or insufficiency of all three or even of two types of vitamins.

Besides the simple deficiencies, which result from the lack of one of the accessory alimentary factors, there are "mixed" deficiencies, and these are probably the more numerous. Rachitis, in which avitaminosis and a deficiency of minerals are concurrent, is the more important affection of this group. All the foods rich in vitamin A exert either a prophylactic or a curative effect on rachitis. Cod liver oil, which is rich in vitamin A, should be regarded as a specific antirachitic food. The treatment should be supplemented by a diet rich in calcium and phosphorus, and by appropriate hygienic measures (air, light and exercise).

Dr. G. Linossier (Vichy) criticized sharply the mystical interpretations of the rôle of vitamins considered as *substances vivantes* (living substances), *substances-ferments* (fermentative substances), etc. As he views the matter, the pathologic effects of *"la carence"* (deficiency) may be clearly understood if we regard vitamins as simple foods possessing the double quality of being required only in infinitesimal doses much the same as other simple substances, such as arsenic, iodin and zinc, and of not being producible by the human organism, as certain amino-acids. On the other hand, Linossier called attention to the relative character of the need of vitamins. Of a group of persons subjected to a diet deprived of vitamins, only a certain number contract scurvy or beriberi. Not all children brought up on sterilized milk fall victims of scurvy. It is highly probable that after having established the pathogenic rôle of *la carence*, investigations will have to establish the cause of sensitiveness to such deficiency. There will be repeated here what we have observed in the realm of infection, where, after dealing exclusively with the virulence of the microbe, we were compelled to recognize the importance of the receptivity and the resistance of the organism in question.

The Voronoff Incident

Dr. Serge Voronoff was to present to the Congress of Surgery a communication on the implantation of genital glands. But as the Paris edition of an American daily journal had published that very morning a résumé of the communication, Professor Hartmann, president of the congress, decided that Voronoff could not be allowed to give his report, since its premature publication was contrary to the rules of the Congress of Surgery, which require that no communication shall have been previously published. Voronoff protested against this decision, but his protests raised such a storm of whistling and stamping that the unfortunate "renovator of corporeal vigor" felt compelled to leave the room.

BERLIN

(From Our Regular Correspondent)

Oct. 19, 1922.

Economic Distress Among Physicians

If one reads in the foreign press the statements of foreigners who have led, for a short space of time, a luxurious life in the hotels and restaurants of Germany, it becomes at once clear why we note so frequently the view expressed by foreigners that economic conditions in Germany are by no means as bad as they are portrayed in the German press. However, if one will examine more closely into the matter one will get an entirely different impression, and will find that the situation of certain industrial and professional classes, especially, is very bad. The economic distress of German physicians, particularly in the large cities, is increasing day by day. Their bad economic situation is occasioned not only by the rapidly increasing sum of money required for ordinary living expenses, but also by the growing cost of medical practice and the decrease in the number of patients, which, in turn, is due to the fact that many persons in need of a physician are unable to pay the seemingly high medical fees.

Another disturbing factor is that private medical practice is becoming more and more restricted by the spread of social insurance. What havoc the health insurance system plays with the physician's income, under the present unstable economic conditions, may be learned from the fact that four weeks' treatment of a patient carrying public health insurance brings the attending physician in the now insignificant sum of 39 marks. The transactions of the Berlin *Aerztekammer* of October 14 give an insight into the appalling conditions. The government feels compelled, in view of the wage conditions existing among laborers and other employees entitled to social insurance under the law, to grant to an ever increasing number the privilege of receiving medical treatment and medicines through the health insurance societies or sick benefits associations *(Krankenkassen)*. The significance of the recent increase in the cost of living will be seen from the fact that the augmentation for September as compared with August amounts to 80 per cent. Before the war, a kilogram of beef cost in Berlin about 4 marks—now, 500 marks. A kilogram of margarin cost formerly 1.50 marks—now 720 marks. We used to pay 3 marks for a kilogram of butter—the price now is more than 1,000 marks; an egg was 0.10 mark—now one costs 35 marks, while a liter of milk is 61 marks. The price of men's ordinary suits is at least 25,000 marks. Provisions and foodstuffs, as a whole, have increased in price 450 fold, as over against the prewar period. These facts tell a different story from the accounts of carousing and feasting indulged in by foreigners in Berlin restaurants. The most meager equipment of a physician requires today an expenditure of 500,000 marks, while a roentgen-ray outfit costs from 1,500,000 to 2,000,000 marks. Under present conditions, the upkeep of hospitals is becoming increasingly difficult. The financial stress of the cities makes it impossible for them to continue to grant, as formerly, the necessary appropriations for public hospitals, and so it happens that needy patients, who in consequence of their own financial plight are obliged to seek, more often than before, admission to public hospitals, do not find there the hoped-for assistance. Not only the equipment in instruments but also the supply of linen is falling below the standard, as the means for procuring the necessary renewals, not to speak of the newer instruments, are not forthcoming. In most hospitals the linen has to be washed twice daily. According to a memorial of the federation of private caretaking institutions operating on a social welfare basis, 318 of such institutions had, at the end of 1921, a deficit of 50 million marks. Since patients, these days, receive very often inadequate care and treatment at home, they have to be retained, in accordance with their request, much longer than usual in the public hospitals, which tends to overcrowd these institutions. The bad economic situation has also the effect of increasing the number of commitments to the hospitals for the insane. The mental worries connected with the struggle for existence are inclined, as will be readily understood, to accentuate any psychic tendencies to mental disease.

Therefore, in view of these conditions as described, it would be extremely laudable if German physicians living abroad, and likewise foreign physicians who received their training, wholly or in part, at our universities, would come to the assistance of the physicians of Germany in this their hour of distress.

Drafting of Law to Combat Venereal Disease

The Reichstag has taken up again its deliberations on the bill to which I referred in a former letter. The committee has again approved of Section 2, which has caused so much agitation. Section 2 provides that the treatment of venereal patients must be restricted to physicians licensed to practice in Germany. The endeavors of so-called nature doctors and quacks to be conceded the right of treating in venereal cases have, therefore, proved unavailing. It remains to be seen whether the plenary assembly of the Reichstag will endorse the action of the drafting committee.

The Seventieth Birthday of Professor Binswanger

Prof. O. Binswanger, the former director of the Nerve and Psychiatric Clinic in Jena, celebrated, October 14, his seventieth birthday. He was a pupil of the psychiatrists Ludwig Meyer in Göttingen and Karl Westphal in Berlin. He presented in 1882 his inaugural dissertation and, that same year, he was called to Jena as head professor and director of the Landes-Irrenanstalt. Among his numerous writings on affections of the central nervous system and on the clinical manifestations of mental diseases, I will mention more particularly "Studies on the Finer Changes in the Cerebral Cortex in Progressive Paralysis," and "Experiments on the Motor Areas of the Cerebral Cortex," especially on the psychomotor portions. His works on "The Acute and the Early Forms of Progressive Paralysis" and on "The Relationship Between Moral Insanity and Hereditary Degenerative Mental Disease" are worthy of note. His smaller works on "Public Care of the Insane" and "Zur Fürsorge für geistig minderwertige und geistig abwegige Kinder" present considerable interest. It is worthy of mention that Friedrich Nietzsche was admitted as a private patient to his institution. With regard to the mooted question whether or not Nietzsche suffered from genuine progressive paralysis (paresis), Binswanger once told me personally, in response to my query, that his condition represented probably an atypical form of that disease.

V. 192

Marriages

WARD STANLEY WELLS, Major, M. C., U. S. Army, to Miss Elinor Dudley, both of San Francisco, October 18.

CARL ST. CLAIR RATIGAN, Detroit, to Miss Adeline M. Page of Windsor, Ont., Canada, September 26.

SANTOS BELLINI LUCENT, Mineola, N. Y., to Miss Thea Edith Burnam of Delhi, N. Y., recently.

GEORGE HUNTINGTON WILLIAMS to Miss Mary Camilla McKim, both of Baltimore, October 21.

WALTER EVAN LEE, Darby, Pa., to Miss Ruth Wilks Freeman, at San Francisco, August 7.

WALTER WALKER PALMER to Miss Francesca de Kay Gilder, both of New York, October 12.

ERNEST STANLEY V. LAUB to Miss Dorothy F. Wilder, both of Detroit, September 26.

HENRY HAGER MARTIN to Miss Lena Inez Bishop both of Savannah, Ga., October 19.

RAYMOND JOHN SPROWL to Miss Jean Porter, both of Spokane, Wash., October 7.

IVAR ELLSWORTH REED to Miss Catherine I. Ensley, both of Detroit, September 20.

WILLIAM RUSH GOFF to Miss Iva DePue, both of Kyger, W. Va., October 11.

PATRICK LIAM LEDWIDGE to Miss Mary J. Hooley, both of Detroit, August 31.

O. S. WYATT to Miss Ann French, both of Minneapolis, in September.

Deaths

Gustav A. Futterer ✱ Chicago; University of Würzburg, Germany, 1883; professor of gastro-enterology at the Chicago Polyclinic; formerly served with the M. C., U. S. Army; consulting physician to the former Marion Sims Sanatorium; member of the Chicago Pathological Society, Society of Medical History of Chicago, and the German Congress of Internal Medicine; aged 66; consulting physician at the Columbus Hospital, where he died, November 3, from heart disease.

Karl von Ruck ✱ Asheville, N. C.; University of Tübingen, Germany, 1878; University of Michigan Medical School, Ann Arbor, 1879; died, November 5, from chronic nephritis. Dr. von Ruck was born in Constantinople in 1849 and shortly after his graduation in Germany went to England and from there to the United States. Following some years' practice in Ohio, he settled in Asheville, where he founded the Winyah Sanatorium in 1888.

Wadsworth Warren ✱ Detroit; University of Michigan Medical School, Ann Arbor, 1889; associate professor of otology at Detroit College of Medicine and Surgery; member of the Detroit Oto-Laryngological Society and the Detroit Society of Neurology and Psychiatry; on the staffs of the Detroit Receiving, and Providence hospitals; died, October 22, aged 57, from heart disease.

John M. Wilcox, Clinton, Ill.; Northwestern University Medical School, Chicago, 1879; member of the Illinois State Medical Society; former president of the county medical society and of the pension board; surgeon to the John Warner Hospital; member of the school board and local surgeon for the Illinois Central Railroad; died, October 23, aged 76, from chronic nephritis.

William Harvey Harrison, Santa Ana, Calif.; Kentucky School of Medicine, Louisville, 1898; member of the Medical Society of the State of California and of the Medical Association of Montana; formerly ophthalmologist, otologist, laryngologist and rhinologist in the U. S. Indian Service; died, October 15, aged 52, from arteriosclerosis and uremia.

George Crosier Whitney ✱ Rochester, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1908; served in the M. C., U. S. Army, with rank of captain during the World War; died, October 7, aged 45, at the Highland Hospital, following an operation for duodenal ulcer.

George Henry Chaffee, Binghampton, N. Y.; University of Michigan Medical School, Ann Arbor, 1881; member of the Medical Society of the State of New York; founder, and for five years chief surgeon, of the Bay Ridge Hospital, Brooklyn; aged 67; died of heart disease, October 26.

Angus Wylie Kenning, Victoria, B. C., Canada; Detroit College of Medicine and Surgery, Detroit, Mich., 1895; president of the Victoria Medical Association; chairman of staff, St. Joseph's Hospital, and surgeon to the Provincial Royal Jubilee Hospital; died, August 21, aged 54.

Fitz William Dalrymple, New Rochelle, N. Y.; Bellevue Hospital Medical College, New York, 1889; visiting physician to the New Rochelle Hospital; member of the Celtic Medical Society of New York; at one time city health officer; died, October 25, aged 60.

Albert Otto Zwick, Cincinnati; Medical Department of the University of Cincinnati, 1902; for several years instructor at the Cincinnati College of Pharmacy; associated with several hospitals in the city; died suddenly, October 21, aged 56, from heart disease.

E. S. Stuart, Fairview, Ky.; Washington University, Medical School, St. Louis, 1851; founder of the Jennie Stuart Hospital, Hopkinsville, Ky., to which he gave $50,000 in memory of his wife; aged 99; died, October 18, from senility, at Hopkinsville.

James McMillin, Goodwell, Okla.; University of the South Medical Department, Sewanee, Tenn., 1900; member of the Tennessee State Medical Association; aged 72; died, September 7, from a gunshot wound in the heart, presumably self-inflicted.

Louis Rosenthal, New York; New York University Medical College, 1898; assistant genito-urinary surgeon at the Gouverneur Hospital Out-Patient Department, and to the Stuyvesant Polyclinic; died, October 19, aged 46, from heart disease.

William H. Byerly, Franklin, Neb.; Medical College of Virginia, Richmond, 1869; member of the Nebraska State Medical Association; for several terms mayor of Franklin; retired in 1920 on account of ill health; died, October 18, aged 82.

Thomas Jefferson Johns, Tallapoosa, Ga.; Medical College of Alabama, Tuscaloosa, Ala., 1888; member of the Medical Association of Georgia and the Southern Medical Association; died suddenly, October 14, aged 69, from heart disease.

Charles Strong Dickinson, Lockport, N. Y.; Niagara University, Medical Department, Buffalo, 1892; county jail physician; aged 58; was killed instantly, October 19, when the automobile in which he was driving was struck by a train.

Henry J. Minthorn, Metlakatla, Alaska; State University of Iowa College of Medicine, Iowa City, Iowa, 1874; Jefferson Medical College, Philadelphia, 1877; died, October 11, at Portland, Ore., aged 76, from obstruction of the gallduct.

Charles C. Bernard, Chicago; Chicago Homeopathic Medical College, 1882; member of the Illinois State Medical Society; attending eye and ear surgeon to the Illinois Masonic Hospital; died, October 29, aged 66, from pneumonia.

Octavius Weld, Vancouver, B. C.; University of Toronto, Faculty of Medicine, Toronto, Ont., Canada, 1886; L.R.C.B. and L.M.S.A., London, 1889; died, September 11, aged 60, at the Vancouver General Hospital, from pneumonia.

George H. Colville, Circleville, Ohio; Columbus Medical College, 1879; member of the Ohio State Medical Association; president of the city council; aged 67; died at the Grant Hospital, Columbus, October 25, from septicemia.

Mary Imogene Bassett ✱ Cooperstown, N. Y.; Woman's Medical College of Pennsylvania, Philadelphia, 1887; chief of staff of the Imogene Bassett Hospital; died suddenly, October 22, aged 66, from cerebral hemorrhage.

Elias H. Etchison, Gaithersburg, Md.; University of Vermont, College of Medicine, Burlington, 1885; aged 66; died suddenly, October 19, from heart disease, at the bedside of a woman he had just delivered of a child.

Ralph Charles Kendig ✱ Akron, Ohio; Miami Medical College, Cincinnati, 1902; former county coroner; aged 46; on the staff of the City Hospital, where he died, October 19, following an operation for peritonitis.

F. Milton Friend, Lamar, Colo.; Ohio Medical University, Columbus, Ohio, 1894; member of the Colorado State Medical Society; formerly coroner of Baco County; died, October 23, aged 77, from strangulated hernia.

Edward Blackadder, Bedford, N. S.; Dalhousie University, Faculty of Medicine, Halifax, N. S., 1905; represented Halifax County in the Canadian House of Parliament; aged 50; died, October 22, in Halifax.

Edwin Field ✱ Red Bank, N. J.; Medical Department of Columbia College, 1873; on the staff of the Monmouth

Memorial Hospital, Long Branch, N. J.; died, October 27, aged 73, from encephalitis.

Walter Carl Troutman, Tennville, Ga.; Atlanta College of Physicians and Surgeons, 1911; member of the Medical Association of Georgia; aged 37; died suddenly, September 26, from acute indigestion.

Henry C. Aldrich, Minneapolis; Hahnemann Medical College of Philadelphia, 1881; acted as surgeon to the Minneapolis City Hospital, 1897-1905; died in September, aged 65, at Santa Monica, Calif.

Charles Thomas Cooper, San Angelo, Texas; Vanderbilt University, Medical Department, Nashville, Tenn., 1880; member of the State Medical Association of Texas; died, October 22, aged 68.

William Patrick Slattery ✙ Dubuque, Iowa; Bellevue Hospital Medical College, New York, 1893; member of the staff of the Mercy Hospital; aged 53; died, October 20, from chronic nephritis.

John Calhoun Thompson, New York; Medical Department of the University of the City of New York, 1882; demonstrator of anatomy at his alma mater, 1881-1883; died, October 17, aged 66.

William Douglas Haight, Johnstown, Pa.; Rush Medical College, Chicago, 1883; on the staff of the Conemaugh Valley Memorial Hospital; specialized in roentgenology; died, October 23, aged 63.

Addison B. G. Reader, Camden, N. J.; Baltimore Medical College, 1898; on the staff of the Sunny Rest Sanitarium, Ancora; aged 46; died suddenly, October 18, from heart disease.

Walter G. Kimbrough, Denton, Texas; Vanderbilt University, Medical Department, Nashville, Tenn., 1891; member of the State Medical Association of Texas; died, October 19, aged 52.

Frederick Homer Brewer ✙ Utica, N. Y.; Albany Medical College, Albany, N. Y., 1878; on the staff of the Faxton Hospital for twenty years; died, October 24, aged 68, from heart disease.

Leslie Edmund Thompson, Woodcliff, Ga.; Atlanta School of Medicine, 1921; died, October 1, at Colorado Springs, Colo., aged 38, from pulmonary tuberculosis.

Francois X. R. Lafleche, Warwick, Quebec, Canada; Victoria University, Medical Department, Toronto, 1879; died, September 10, aged 67, from paralysis.

Frederick A. Dantzler, Heidelberg, Miss.; Kentucky School of Medicine, Louisville, 1891; county health officer of Jasper County; died, October 16, aged 63.

Herbert Edward Shepherd, Toronto, Ont., Canada; Victoria University, Medical Department, Toronto, 1872; died, October 3, aged 77, from senility.

Benjamin F. Baker, St. Paris, Ohio; Starling Medical College, Columbus, Ohio, 1865; Civil War veteran; died, October 23, aged 78, from paralysis.

Warren Augustus Miner ✙ Ossining, N. Y.; Medical Department of the University of the City of New York, 1882; died, October 21, aged 69.

Loron Whitney Howk ✙ Rochester, N. Y.; University of Michigan, Medical School, Ann Arbor, 1891; died, October 23, aged 56.

D. C. Damron, Sheridan, W. Va. (licensed, West Virginia, years of practice); died, October 1, aged 78, from tuberculous peritonitis.

James M. Townes, Joshua, Texas; Medical Department, Vanderbilt University, Nashville, Tenn., 1875; died, October 1, aged 76.

John A. Beall, Detroit; Columbus Medical College, Columbus, Ohio, 1889; died, October 23, aged 61 following a long illness.

John P. Cook, Colquitt, Ga.; Atlanta Medical College, Atlanta, Ga., 1895; died, October 9, aged 56, from peritonitis.

Alford B. Sullivan, Liberty, N. Y.; Bellevue Hospital Medical College, New York, 1898; died, October 26, aged 56.

Asa L. Payne, Danielsville, Ga.; Atlanta Medical College, 1887; aged 65; died, September 23, at a local hospital.

Stephen J. Hubbell, Fort Lupton, Colo.; Jefferson Medical College, Philadelphia, 1856; died, October 16, aged 88.

S. Bowers, Brenham, Texas; New Orleans School of Medicine, 1870; died recently, aged 77.

F. Andrews, Alicia, Ark. (licensed, Arkansas, 1903); died, October 20, aged 47.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

GALYL NOT ADMISSIBLE TO N. N. R.

Abstract of a Report of the Council on Pharmacy and Chemistry *

In 1918, Geo. J. Wallau, Inc., acting as U. S. distributor for Galyl (which is manufactured by A. Naline, Garenne, France) requested the Council to consider the product.

At that time, Galyl was stated to be tetra-hydroxy-diphospho-amino diarseno-benzene and its molecule was said to be made up of two arsphenamin molecules linked by means of two phosphorus groups. It contained 35.3 per cent. arsenic and 7.5 per cent. phosphorus. The product was insoluble in water and for use had to be dissolved by means of sodium carbonate. Galyl was claimed to be less toxic than arsphenamin, quicker in its action on spirilla and of equal therapeutic value.

Wallau, Inc., did not supply the Council with the information which it required to determine the identity, purity and strength of Galyl, and hence the Council postponed consideration of the product to await the submission of this information. Later, Wallau, Inc., advised the Council that the composition of Galyl had been changed. The "new" Galyl, it is claimed, contains only about 18 per cent. of arsenic and is a sodium salt of the "old" Galyl obtained by precipitating a solution of the old Galyl "by means of a solution of sodium hydrosulphite"; this compound, according to information submitted, is presumed to be linked with five molecules of sodium sulphite.

It was admitted that the laboratory work on Galyl had all been done with the old product, but it was stated that the toxicity of the new was lower than that of the old Galyl and that "hundreds of thousands of injections were given in the French and British armies, without a recorded fatality, and the clinical and serological results were so satisfactory that it was adopted as one of the standard treatments."

As no tests of a satisfactory nature were furnished whereby the composition and uniformity of the product might be determined, the A. M. A. Chemical Laboratory was asked to investigate the "new" Galyl with the idea of devising suitable tests if the product seemed to be what it was claimed. At this time the U. S. Patent Office had issued a patent for the manufacture of old Galyl base; also the U. S. Public Health Service, on the basis of animal experiments, had authorized the importation of the "new" Galyl.

The investigation made in the Association's chemical laboratory indicated that either the new Galyl did not have the composition ascribed to it in the advertising issued by Wallau, Inc., or that it would not have this composition at the time it is administered.

The A. M. A. Chemical Laboratory submitted the new Galyl (which was claimed to have the advantage over the old Galyl of use without alkalization) to a study for the purpose of determining whether or not it had the chemical composition claimed for it. The laboratory found that a solution of this new Galyl responds to practically all the tests in New and Nonofficial Remedies for sodium arsphenamin, except that there is present both sulphite and phosphate. The study indicated that the sodium salt of diphospho-diarsphenamid ("galyl sodium base"), if present as claimed, is easily hydrolized into sodium phosphate and sodium arsphenamin and that there is no evidence of a linking between the sulphite groups and the arsphenamin compound, as claimed by the manufacturer. When the new Galyl is dissolved in water, either it is partly decomposed into sodium phosphate and sodium arsphenamin or else the

* A copy of the complete report will be sent on receipt of a stamped directed envelop. It will appear in the Annual Reports of the Council on Pharmacy and Chemistry for 1922.

original product contains sodium arsphenamin and sodium phosphate. In either case the injection will probably amount to the administration of a mixture of phosphars phenamin (if any is present), sodium arsphenamin, sodium phosphate, sodium sulphite and sugar.

In December, 1921, the complete report of the Association's laboratory was sent to the Galyl agent in duplicate, to facilitate its transmission to the French manufacturer. In transmitting the report, it was pointed out that if, as the report indicates (1) Galyl is a mixture containing diphosphodiarsphenamide ("old" galyl), sodium sulphite and sugar which decomposes in solution yielding sodium arsphenamine or (2) Galyl does contain the sodium salt of diphosphodiarsphenamide (mixed with sodium sulphite) which in solution decomposes by hydrolysis into sodium arsphenamine and sodium phosphate, then a radical revision of the advertising claims for Galyl is in order. It was further explained that in such instance the Council might also require evidence that the administration of Galyl possesses advantages over the administration of sodium arsphenamine.

Nothing has been received from the agent of the manufacturer to offset the findings of the chemical report. On the contrary, the work has been essentially confirmed by other investigators.

On June 20, 1922, Wallau, Inc., in reply to an inquiry from the Council, advised that no reply to the report had been received from the manufacturer, although this had been asked for repeatedly. Wallau stated that this information would be sent the Council when received and that pending final action of Galyl by the Council no new advertising material was being put out but that orders for Galyl are being filled.

The failure of the manufacturer of Galyl to present evidence controverting the findings of the A. M. A. Chemical Laboratory is presumptive evidence that Galyl does not have the composition claimed for it. This conclusion is supported by the evidence of independent investigators.

In the absence of evidence to the contrary, it must be concluded that (1) the composition of Galyl has not been correctly declared, and (2) the therapeutic claims are unwarranted since they ascribe to Galyl a composition which it does not appear to possess. Further, since the evidence indicates that the administration of Galyl amounts to the administration of sodium arsphenamine, its use under another name than sodium arsphenamine and with deceptive claims for its composition is irrational and a detriment to rational therapy.

Accordingly the Council declared Galyl inadmissible to New and Nonofficial Remedies.

Correspondence

"SOCIALISTIC TENDENCIES IN MEDICINE"

To the Editor:—In THE JOURNAL, September 23, Dr. Haven Emerson, who during the spring of 1922 conducted a six weeks' survey of the Department of Hospitals and Dispensaries of Buffalo, takes up the cudgels in defense of that department and criticizes certain statements made by me in my chairman's address "Socialistic Tendencies in Medicine" (THE JOURNAL, August 12).

I appreciate with Dr. Emerson all that is "unique" in the hospital and dispensary service of Buffalo but I cannot agree with him that the difficulties, inconsistencies or partial failures are minor in character and easy to remedy.

That any hospital or dispensary can be conducted without some bad features and results would be asking the impossible, but the findings of the survey in question present conditions which while hoped for would seem incredibly "too good to be true."

Dr. Emerson states that I put "up a straw man to knock him down" and that I am afraid of socialistic tendencies in medicine. I will quote from a paper by the superintendent of the Department of Hospitals and Dispensaries which appeared in the *New York State Health News:*

> That the Health Center plan as adopted by Erie County is a forerunner of free health by which is meant that rich and poor alike will some day enjoy the highest degree of medical skill with the cost spread on the general tax rate.

Does this forecast socialistic tendencies in medicine?

Dr. Emerson says:

> The hospital plan of Buffalo, including the free dispensary system, is comprehensive and adequate, but not too elaborate or in any way superfluous.

Mr. Graves, commissioner of finance, in a speech before the common council on June 1, stated:

> The City Hospital on its completion will care for 864 patients, and in an emergency 1,100 patients. The census showed 464 patients on April 28th, 1922; 273 were either tuberculous or infectious and would not be welcome in private hospitals; 191, practically 200 patients, could be taken care of in private institutions where they would get equally as good care as in the City Hospital, at a cost to the city of $12.00 per week, while the cost to the city in the City Hospital was $28.35. It must be kept in mind, while discussing the $28.35 cost, that this is merely *comparable* cost and not the *actual* cost. The *actual* cost, which would include interest and depreciation had all the patients been kept in the completed institution during 1920-21, would have been nearer $42 per week.

The public accountants in their report to Mr. Graves state:

> Were the new hospital with its 864 beds open for receiving patients during the influenza year 1918-1919, it would have been filled throughout the year an average of 60 per cent., and that the average occupation for 1920-1921 would have been 57 per cent. The maximum number of patients for the three hospitals on any single day in 1920-1921 filled the present beds only 87 per cent. On the basis of the new capacity (864) this maximum would have filled only 73 per cent. of the beds. Considering a normal prospect they may hope to fill it only to 57 per cent. capacity. And this assuming that the past policy of welcoming any and all patients whether able to pay or not is continued.

Bear in mind that over $3,500,000 has been spent on this hospital plan and the work is not yet finished. Will the taxpayer consider this scheme "not too elaborate or in any way superfluous?"

According to figures furnished by the Department of Public Welfare, the private hospitals in Buffalo cared for city patients as follows:

1916.....	160,000 patient days
1921.....	69,000 patient days
	91,000 patient days

The difference between $4.05, the cost in the City Hospital, and $1.71, the cost in the private hospital, is $2.34 per day. The city, therefore, lost over $200,000 a year by caring for these patients. One of the doctors who had charge of a district testified at the investigation that only two out of every thousand indigents who applied for hospital care asked to go to the City Hospital. Practically every patient, when the preference was expressed by the attending physician, wished to go to a private hospital. Why were the private hospitals drained at a cost to the city of over $200,000 a year if it was not in the attempt to make it appear that there was need of more building and equipment to care for them, and, therefore, more money to spend and more doctors to place on the city payroll?

Patients from outside the city were taken, and are still taken, at a fee of $12 per week by the City Hospital, although it costs the city $28.35 per week. A conservative estimate shows that the city has lost a quarter of a million in the last five years from this class of patients. Is this economy?

Dr. Emerson quotes me as stating:

> There is no official dividing line between those whom they (public dispensaries) care for as free patients and those who are refused because of their ability to pay.

Dr. Emerson says:

> As to there being inadequate protection of the public and the medical profession against abuse, by those able to pay, of facilities intended for the indigent, this, too, is a matter which comes within the scope of the admirable dispensary law of the state of New York. Can Dr. Gardner point to an instance in Buffalo in which medical services are rendered by public or private health or treatment agencies except as expressly authorized by law?

In regard to dispensary patients Commissioner Graves states:

> Now what do we find with relation to pauperism. This material was all compiled and gathered at considerable expense. The report shows 30 per cent. treated as indigents were owners of real property, and approximately two-thirds of those treated as indigent patients were able to pay for treatment.

Dr. Emerson says:

> Dr. Gardner complains of the lack of adequate individual clinical and laboratory care for the patients accepted at the public urological clinic. With the single exception that the open funnel instead of the single or twin glass cylinder method of administering arsphenamin was in use, it is my opinion that the methods, technic and thoroughness of care at the public urologic clinic at Buffalo will be found to compare favorably with the best hospital dispensary services for venereal diseases operating in our large cities.

My statement of the situation was as follows:

> One of our city urologists stated that he saw from fifty to seventy patients in a two-hour period three times a week. He accounts for the number of cases cared for by the excellent system. Gonorrheal patients irrigated themselves, the orderly massaged them and a nurse prepared the arsphenamin, so the urologist's only job was to insert the needle. There was no laboratory attached, and no smears or urine were examined. If the physicians wished these examinations made, the specimens were sent to the city laboratory and reports made at a later date.

My statement has been badly distorted and most of it amputated. If the treatment I have quoted from one of our city urologists "compares favorably with the best hospital dispensary service for venereal diseases operating in our large cities," then there certainly is a need for greater house cleaning and less whitewashing.

JAMES A. GARDNER, M.D., Buffalo.

[The letter of Dr. Gardner was referred to Dr. Emerson, who replies:]

To the Editor:—Neither Dr. Brunet, who lived in Buffalo for six weeks during the investigation and made repeated observations of the operation of the dispensaries, nor I, by careful personal observation, on a number of visits to the free public clinics conducted by the department of hospitals and dispensaries of Buffalo, found any evidence of neglect in the clinical or laboratory procedures regularly employed for diagnosis of syphilis and gonorrhea; nor did we find that the essentials of treatment were omitted.

Orderliness, system, method and reasonable regard for privacy prevailed at the venereal disease clinic, and adequate record of the number of patients, the diagnosis, the treatment given and other pertinent facts was made in each case. Dr. Gardner's complaint of an undesirable routine, rapidity and neglect of medical service leaves me unconvinced.

That the statement of the public accountants in the matter of dependency of applicants for free hospital and dispensary care was not taken seriously by the mayor and prosecuting counsel in the case against the board of trustees of the department of hospitals and dispensaries was evident from the fact that the records of the commissioner of public welfare frankly controverted their testimony. I still think it reasonable to ask Dr. Gardner if he has any evidence of violation in Buffalo of the State Dispensary Law and if so, whether he has asked the proper city officer to take appropriate action in the case.

Dr. Gardner points to an inconsistency in the city policy of Buffalo to which I took pains to call attention in my report; namely, that the privately controlled hospitals were paid by the city a rate for bed care of the indigent patients far below actual cost of the service rendered in these hospitals. My study did not include an analysis of the per capita cost of bed care in these private hospitals, but no responsible hospital administrator in Buffalo or any other of our large cities will accept the figure of $1.71 a day as representing even half of the true cost of hospital care for general medical and surgical patients, when such care is analyzed and reported with the completeness characteristic of the accounting of the Buffalo City Hospital.

That the city maintains its quite unjustifiable contract with the supervisors of Erie County to care for patients from outside the city at $12 a week, when such care costs Buffalo $28.35 a week, is to be deplored from the point of view of the tax-payer, but does not in any way serve as an argument against the continuation of the high-grade hospital and dispensary services which Buffalo City supplies for its own indigent sick. On page 28, and in Recommendation No. 40 of the report, for which I was responsible, both of these matters were dealt with.

The public accountants and the commissioner of finance were shown to be grossly in error at the hearings in their attempts to prove waste and extravagance in the department of hospitals and dispensaries, and the charges which they attempted to sustain were dismissed by the court; the board of trustees was wholly exonerated, was continued in office by the mayor, and its budget, including a continuation of all the activities which had been criticized, was approved in June by the city council for the next fiscal year.

All of which seems to me far from the main question at issue which, as I understand it, is whether anything in the provision of adequate, high-grade diagnosis and treatment of the indigent sick by physicians and surgeons nominated by the faculty of the medical school of the University of Buffalo and serving in the City Hospital and branch dispensaries (many of these physicians taking an active part on the teaching staff of the medical school) is antisocial or "socialistic"; or whether these physicians and surgeons are carrying out the best traditions of the profession in medical practice and education, and thereby earning our approval and respect.

For my part, I can see nothing of the so-called "socialistic tendency in medicine" in Buffalo that cannot be found to an equal degree in the services provided by hospitals and dispensaries used in the teaching of medical students and serving the public in Boston, New Haven, New York City, Philadelphia, Cleveland, Cincinnati, Pittsburgh, Chicago and St. Louis. I remain of the impression that Dr. Gardner, in his chairman's address, indulged in generalities without substantial evidence to support his criticisms, and that the result of his attack on the care of the sick poor in his home town, if unanswered, would be to discredit an excellent public service now trusted to the hands of his competent fellow practitioners.

As I was invited to study the activities of the public department of hospitals and dispensaries, not by the physicians of Buffalo, nor by the department concerned, but by a committee of more than 100 public-spirited laymen interested in obtaining, as nearly as practicable, an impartial professional statement of the character of services and their value to the community, I could not refrain from opposing publicly the attack which Dr. Gardner directed particularly against the care of the sick poor in Buffalo.

HAVEN EMERSON, M.D., New York.

USE OF SOLUTION OF HYPOPHYSIS IN ECLAMPSIA

To the Editor:—On the theory that pituitary substance or principle is of great value in stimulating unstriped muscle fibers throughout the body, I was first led to use it several years ago in a case of eclampsia, which occurred a few hours after a normal delivery, when death seemed imminent. Large doses of cathartics had been given, including two or three drops of croton oil, with no effect, as is usual in severe toxemias. A full ampule of a pituitary extract was then given hypodermically, and within a few minutes there was a copious involuntary bowel movement; and the patient made a complete recovery. I have since used this treatment in similar cases, with gratifying results. It may be given cautiously ante partum also.

In a recent case, this substance was used to increase peristalsis following renal colic. A large amount of morphin was used over a period of forty-eight hours before the calculus passed through into the bladder, as was shown by roentgen ray. Large doses of cathartic were taken but were ineffective, and the patient was in great distress until one ampule of pituitary substance was administered, which gave the desired results in a few minutes.

Any good extract of the posterior pituitary body may be used: the secret of its successful use as an aid in elimination is to have plenty of cathartic in the bowel before using it. A full ampule may be given hypodermically every thirty minutes until the desired result is obtained; however, I have never found it necessary to use more than two doses.

FINDLEY D. JOHN, M.D., Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HABITUAL USE OF BARBITAL

To the Editor:—Will you please let me know what the effects of veronal are after months of using it? I have a friend—a nurse—who tells me that she cannot sleep without it, and has taken from 5 to 12 grains (0.3 to 0.8 gm.) every night for more than six months.

A. J. K., Florida.

ANSWER.—The constant use of even small doses of barbital (veronal) affects the central nervous system. Those taking the drug habitually become much debilitated and seem less able to stand moderate doses. Death has occurred from a 3 gm. dose in addicts. The gradual substitution of antipyrin salicylate for barbital has been reported in the treatment of an addict (THE JOURNAL, Feb. 21, 1920, p. 544). Because of frequent reports of accidents and habit formation, the Privy Council of Great Britain has classified veronal (barbital) as a poison (THE JOURNAL, March 30, 1918, p. 953). Many cases of poisoning, some fatal, occur from its indiscriminate use by the laity. The condition is attended by long-continued stupor, sometimes interrupted by excitement. It has been confused with uremia, epidemic (lethargic) encephalitis and opium poisoning. Skin rashes are of frequent occurrence (Useful Drugs, Ed. 5, p. 38).

PEMPHIGUS NEONATORUM—CORN SYRUP IN INFANT FEEDING—ALTITUDE AND NERVOUS SYSTEM

To the Editor:—1. In a recent book pemphigus is given a good prognosis. Please discuss. 2. Please give the indications, approximate amounts and methods of preparation for feeding of corn syrup. 3. Does sunshine have any definite effect on the nervous system in high altitudes? Please omit my name. INQUIRER, Kansas.

ANSWER.—1. The prognosis is favorable if the process confines itself to the superficial layers of the skin. If the deeper layers are attacked, abscesses and general sepsis result.

2. Marriott in 1919 advocated the use of corn syrup containing dextrose in combination with lactic acid milk on the ground that such combination would allow absorption before the carbohydrate could be attacked by the intestinal bacteria and broken down. He used commercial corn syrup, and mixed 45 volumes of the syrup with 55 volumes of water; 100 c.c. of this mixture contains approximately 50 grams of carbohydrate. This was added to lactic acid milk in some cases so that the total carbohydrate in the mixture was as high as 10 to 15 per cent. Marriott recommended this method of feeding for severe cases of malnutrition.

3. This subject is discussed in the following journals:

Hingston, R. W. G.: Physiological Changes at High Altitudes, *Indian J. M. Res.* **9**: 173 (July) 1921.
Schneider, E. C.: Physiological Effects of Altitude, *Physiol. Rev.* **1**: 631 (Oct.) 1921.
Heber, A. R.: Some Effects of Altitude on Human Body, *Lancet* **1**: 1148 (May 28) 1921.
Laquer, F.: Effect of Mountain Climate on Blood and Exchange of Fluids Between Blood and Tissues, *Klin. Wchnschr.* **1**: 163 (Jan. 21) 1922.
Feer, E.: Action of Mountain Climate on Sick Children, *Schweiz. med. Wchnschr.* **51**: 437 (May 12) 1921; abstr., THE JOURNAL, July 2, 1921, p. 73.
Frenkel-Tissot, H. C.: Blood at High Altitudes, *Schweiz. med. Wchnschr.* **52**: 613 (July 15) 1922; abstr., THE JOURNAL, Sept. 2, 1922, p. 856.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 14-15. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Eclec Bd., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith; Sec., Homeo. Bd., Dr. George M. Love, Rogers.
CONNECTICUT: Hartford, Nov. 14-15. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.
CONNECTICUT: New Haven, Nov. 14-15. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.
DELAWARE: Wilmington, Dec. 12-14. Sec., Dr. P. S. Downs, Dover.
LOUISIANA: New Orleans, Dec. 7-9. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.
MAINE: Portland, Nov. 14-15. Act. Sec'y., Dr. Adam P. Leighton, Jr., 192 State St., Portland.
MARYLAND: Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.
MASSACHUSETTS: Boston, Nov. 14-16. Sec., Dr. Samuel H. Calderwood, 144 State House, Boston.
MISSOURI: Kansas City, Nov. 20-23. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.
NORTH CAROLINA: Durham, Dec. 12. Sec., Dr. Kemp P. B. Bonner, Raleigh.
OHIO: Columbus, Dec. 6-8. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.
SOUTH CAROLINA: Columbia, Nov. 14. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
TEXAS: Waco, Nov. 28-30. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.
VIRGINIA: Richmond, Dec. 5-8. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

REPORT OF THE THIRTEENTH EXAMINATION OF THE NATIONAL BOARD OF MEDICAL EXAMINERS

The thirteenth examination of the National Board of Medical Examiners was held in twenty-three Class A medical schools, June 19, 20 and 21, 1922, in Part I, which comprises written examinations in each of the six fundamental medical sciences. The subjects of the examination and the relative value of each were: anatomy, 100; physiology, 75; materia medica and pharmacology, 75; pathology, 75; physiologic chemistry, 50, and bacteriology, 50, making a total of 425 counts for this part.

A candidate taking Part I must earn at least 75 per cent. of this total. The number of counts earned in any subject depends directly on the ratings of the answered papers. Falling below 65 per cent. in two subjects or below 50 in one subject constitutes a failure.

Under the new plan of examination, a candidate is allowed to take an incomplete examination, omitting one of the subjects, if the instruction in this subject is not completed in the medical school of attendance by the end of the second year. One hundred and forty-two candidates appeared for examination in Part I; of these, eighty-eight passed, thirty-one took an incomplete examination, and twenty-three failed to pass the examination.*

EXAMINATION, PART I

ANATOMY

Answer eight questions out of the ten: 1. Discuss the development of the male and female genital organs. 2. Discuss the structural elements of blood and their development. 3. Make a diagram of the lymph glands of the neck, naming regions drained. 4. Describe the parotid gland. 5. Describe the wrist joint. 6. Make a diagram showing the topography of the normal heart and its valves. 7. Make a diagram showing the topography of the stomach when full and empty. 8. Draw section of the thigh through the adductor canal (Hunter's canal); label all structures. 9. Draw a medial sagittal section of the pelvis in the female; label all structures. 10. Describe the nervous mechanism involved in moving; make diagram of cortical motor centers.

PHYSIOLOGY

Answer any five of the following questions: 1. Outline the present knowledge of the cause of the heart-beat. 2. On what factors does the acid-base equilibrium of the blood depend? 3. Discuss the respiratory gases in blood and lymph. 4. Describe the digestion and absorption of fat. 5. Describe direct and indirect calorimetry. 6. Describe the results of removing the cerebral cortex from dogs.

PHYSIOLOGIC CHEMISTRY

Five of these questions to be answered: 1. Give in detail the chemistry of the gastric juice and the products which result from its action on proteins. 2. Give the chemistry of the pancreatic juice and the results of its action on proteins, carbohydrates and fats. 3. Give the origin, chemical composition and destination of the red blood corpuscles. 4. Give the chemical constituents of the cerebrospinal fluid and the significance of increase or decrease in any of these constituents in disease. 5. Give

* The list of those passing and failing in Part I and the averages obtained appears in a reprint which may be secured from the secretary of the Board, or from THE JOURNAL on receipt of a stamped directed envelop.

the origin, chemical composition and destination of both bile pigments and bile acids. 6. Describe the urinary deposits that may occur in pathologic urines, and give the clinical significance of such deposits. 7. Give the physical characteristics and chemical constituents of normal blood plasma. 8. What are vitamins, and tell what diseases develop when one or more vitamins are lacking in the food. 9. What is cystin, and tell what you can about its formation in the body, both in health and in disease. 10. Tell what you know about the chemistry of bone.

PATHOLOGY

Answer five questions from the following: 1. Describe the resolution of an inflammatory exudate. 2. Describe three types of acute diffuse nephritis. 3. Discuss the etiology of acute poliomyelitis, and describe the lesions associated with it. 4. Discuss the etiology of amyloid degeneration, the nature of the change and the technic of its recognition. 5. What factors may interfere with the normal return of the blood to the heart? 6. Discuss the pathology of fever. 7. Discuss malignancy of tumors. Name ten benign tumors.

BACTERIOLOGY

Answer any five of these six questions: 1. (*a*) What organisms are concerned in the etiology of bacillary dysentery? (*b*) How would you differentiate dysentery bacilli from colon bacilli; (*c*) from typhoid bacilli? (*c*) What other forms of dysentery are recognized clinically, and how are they differentiated by laboratory methods? 2. (*a*) What is typhoid-paratyphoid vaccine? (*b*) What are the general principles underlying its use for prophylactic purposes? (*c*) What is your opinion as to its usefulness as a protective measure in the prevention of the typhoid-paratyphoid fevers? 3. (*a*) What is the diphtheria antitoxin unit? Explain it in terms of the experiment by which it is ascertained. (*b*) Indicate the dosage and method of administration of diphtheria antitoxin that you would carry out if called in to treat the following types of cases: (1) mild attack of diphtheria, in a ten-year-old child, seen early in the course of the disease; (2) very severe attack of diphtheria, in an adult, seen late in the course of the disease. 4. (*a*) Given a case requiring blood transfusion, why is it important to ascertain the blood group of the donor and recipient? (*b*) What is the most commonly used classification for grouping the blood of human beings, and how would you carry out the grouping of blood specimens? 5. (*a*) If you were called in to see a child who had been bitten by a pet dog that apparently was in a normal condition, what precautionary steps would you take with reference to the dog? (*b*) If the dog referred to in 5*a* should die within a period of four or five days of an illness suggestive of rabies, what steps would you take to ascertain whether the dog had rabies? (*c*) Under the conditions outlined in 5*b*, what treatment would you advise for the patient bitten by the dog? 6. (*a*) What criteria would influence the diagnosis of gonococci in a smear of pus? (*b*) How may this diagnosis be further confirmed?

MATERIA MEDICA AND PHARMACOLOGY

Answer all questions: 1. (*a*) Give the physical properties of chloroform. (*b*) Give three actions and uses of chloroform. (*c*) Define delayed chloroform poisoning, describing the changes produced in the principal organ affected, as well as the effect on the general system. 2. Give the physical properties, action and uses, and dosage of the following: (*a*) Hydrargyri chloridum mite. (*b*) Hydrargyri oxidum flavum. (*c*) Hydrargyri salicylas. 3. (*a*) Describe three forms of digitalis used for therapeutic administration. (*b*) Describe one method of standardizing digitalis. (*c*) Discuss the emetic action of digitalis. 4. (*a*) Discuss the action of opium and morphine on the gastro-intestinal tract. (*b*) Discuss the effect of opium and morphine on the pupil. (*c*) Describe Dover's powder, and give its principal uses. 5. (*a*) Describe two organic preparations of arsenic. (*b*) Give the dosage, action and uses of each. 6. Give the incompatibilities of the following drugs: (*a*) Atropin. (*b*) Iron. (*c*) Bismuth. (*d*) Potassium iodide. (*e*) Sodium salicylate.

PART II

Part II of the examination was held in sixteen medical schools, June 22 and 23. This was also a written examination in the following subjects and with the relative values assigned: medicine, 75; surgery, 75; obstetrics and gynecology, 50; public health, 25, making a total of 225 counts for this part. A candidate taking Part II must earn at least 75 per cent. of this total. The number of counts earned in any subject depends directly on the ratings of the answered papers. Falling below 65 per cent. in two subjects or below 50 in one subject constitutes a failure.

Sixty-one candidates appeared for examination in Part II. Of these, fifty-one passed and ten failed.

PASSED, PART II

Names and Colleges	Year of Graduation
Halbert Louis Dunn, University of Minnesota Medical School	1920
Wilfred Pickles, Harvard Medical School	1922
Donald Covil Gordon, Harvard Medical School	1922
Charles R. L. Halley, Jr., Johns Hopkins Medical School	1922
Chester Scott Keefer, Johns Hopkins Medical School	1922
William A. Campbell, Jr., Johns Hopkins Medical School	1922
Mary Bailey Sloan, Woman's Medical College	1922
Tinsley Randolph Harrison, Johns Hopkins Medical School	1922
Roy Wilmot Benton, University of Virginia Medical College	1923
Neslen K. Forster, University of Illinois College of Medicine	1919
Margaret G. Smith, Johns Hopkins Medical School	1922
Thomas Minot Dudley, Harvard Medical School	1922
Ruth L. Carpenter, Woman's Medical College	1922
Mary A. Hipple, Woman's Medical College	1922
Tyree C. Wyatt, Syracuse University Medical School	1922
William John Scott, Johns Hopkins Medical School	1923
Curtis Henry Lohr, Washington University Medical School	1922
Roland Nickolaus Klemmer, Univ. of Pennsylvania Med. School	1922
Louis E. Mahoney, University of Colorado Medical School	1922
Merritt Paul Starr, Rush Medical College	1920
Thomas Banford Jones, Johns Hopkins Medical School	1922
Ralph Kable Collins, Johns Hopkins Medical School	1922
Merlin T-R. Maynard, Washington University Medical School	1922
William Eyre Sisson, Johns Hopkins Medical School	1922
Sverre Quisling, Rush Medical College	1922
G. Daniel Delprat, Jr., Univ. of California Medical School	1921
Irwin Miller Walker, Johns Hopkins Medical School	1923
Aloysius P. Rieman, Univ. of N. Y. and Bellevue Hosp. Med. Coll.	1922
Justus Bulkley Rice, Washington University Medical School	1922
Emily Gardner, Woman's Medical College	1922
Thomas Cook Smith, Johns Hopkins Medical School	1921
Mon-Fah Chung, Harvard Medical School	1922
Paul Myron Hamilton, Johns Hopkins Medical School	1922
Dorothea May Moore, Johns Hopkins Medical School	1922
Paul William Vestal, Harvard Medical School	1923
Matilde Luise Maerz, Woman's Medical College	1922
Francis Emily Shields, Woman's Medical College	1922
Walter Boyd Hoover, Washington University Medical School	1918
Charles Sziklas, Harvard Medical School	1921
Mildred Rogers, Woman's Medical College	1922
Robert Glenn Craig, Johns Hopkins Medical School	1922
Miriam Bell, Woman's Medical College	1922
Bertram Louis Bersche, Washington University Medical School	1922
Charles E. Buell, Jr., Johns Hopkins Medical School	1922
Frederick William Marx, Harvard Medical School	1921
John Throckmorton Bate, Univ. of Virginia Medical College	1922
Beulah Wells, Johns Hopkins Medical School	1922
Archibald Sweetland Dean, Johns Hopkins Medical School	1922
Woodruff Smith, Johns Hopkins Medical School	1918
Lillian E. Shaw, Woman's Medical College	1922
Isla Gertrude De Pree, Univ. of Michigan Medical School	1922

FAILED

University of Buffalo Medical College	1923
Woman's Medical College	1922
University of Kansas Medical School	1921
Johns Hopkins Medical School	1921
University of Pennsylvania	1921
Johns Hopkins Medical School	1922
Johns Hopkins Medical School	1922
University of Buffalo Medical College	1922
Harvard Medical School	1923
Johns Hopkins Medical School	1922

AVERAGES OBTAINED IN PART II*

Candidate's Number	Medicine, Value, 75	Surgery, Value, 75	Obstetrics and Gynecology, Value, 50	Public Health, Value, 25	Final Averages
4	80	91	70	89.6	185.7
8	79	85	70	92	181.1
13	75	90	75	70	178.8
19	83.5	88	85	87.5	193.1
20	84	90	76.5	80	188.8
28	86	83	92	86.5	194.5
31	77	75	70.5	94.5	173.1
35	75	87	75	90.5	181.8
37	76	93	81	79.5	187.2
39	89	85	89.5	87	197.2
43	84	68	80	90.5	176.7
44	83	82	86.6	91	189.9
45	71	84	76.6	86	176.1
46	75	51	66	75	146.7
50	80	76	87	85.2	181.8
51	68.5	58	73	72	149.4
52	77	83	75	82.8	178.3
54	86.5	52	84	80	165.9
56	82	62	80	89	170.1
57	75	77	80	75	172.5
61	68.5	86	82.6	90.8	179.9
66	75.5	72	87.6	90.8	179.9
71	70	85	89	86.5	182.5
81	70	79	79	54	164.8
82	78	68	80	57	163.8
86	82	81	85	83.5	185.7
88	69.5	75	79	86	169.5
92	67	68	77.5	58.5	154.8
98	84	90	72	90.5	189.2
100	75	92	84	88	189.3
102	83	87	80	84	188.8
114	75.5	90	80	59	179
115	75	85	75	70.5	175.3
118	82	90	85	83.5	192.4
119	88	87	80	81	191.6
134	79.5	86	80	65.5	180.6
138	84	82	75	81	182.3
155	75	50	80	79.5	153.7
166	79	90	80	85.5	188.2
179	85	90	95	83.5	199.7
196	80.5	86	85	95	191.2
199	80.5	88	75	86.5	181.5
205	88.5	92	90	96	204.4
227	88	94	90	93.5	204.9
235	79	82	75	88.5	180.5
266	89	75	80	90	185.6
271	83	76	80	93	182.6
287	67	76	85	52	162.8
302	77.5	91	85	77	188.3
316	84	67	80	92.5	176.5
329	90	70	75	88.5	179.7
336	83	80	75	84.5	186
348	71.5	80	78	83.5	173.6
368	59.5	65	85	84	157
373	86	87	95	85	198.6
408	79.5	96	90	90.5	199.4
414	75	88	85	86.5	186.5
428	75	88	85	86.5	183
461	60	84	80	79	167.8
469	75.5	75	85	73	173.8
546	78.5	99	80	83.5	194.1

* The general average of the candidates is based on subject values as rated by the board. The averages in each subject are on a basis of 100; 1,000 is the total perfect mark as rated by the board for the entire examination; 225 is the maximum mark on this basis for Part II.

EXAMINATION, PART II

MEDICINE

Answer all seven questions. No credit will be allowed on questions not answered. Read the questions carefully, and answer concisely just what is asked. In the marking of your answers, quality will count more than quantity, and an intelligent understanding of the disease more than a mere array of memorized facts.

The time allowance is three hours. Counting subdivisions, there are fifteen short questions to answer; if you allow ten minutes, on the average, to answer each subdivision, you will have thirty minutes left for review and corrections.

It is unnecessary to repeat the questions in writing.

1. (*a*) What combination of symptoms and physical signs warrants a diagnosis of pericarditis with effusion? (*b*) Discuss the question of paracentesis of the pericardium in a case of pericarditis complicating rheumatic fever. 2. (*a*) Define gout. (*b*) Describe a typical acute attack of gout. (*c*) How would you differentiate the chronic form of gout affecting a number of joints from other chronic forms of arthritis? 3. A woman of 34 years complains of an acute attack of severe griping pain in the right lower quadrant of the abdomen: (*a*) Name the affections which you would consider in making a diagnosis. (*b*) In the case of each affection named, mention the *one* other symptom or sign which, combined with this pain, you consider most characteristic. (Note.—You may, if you wish, describe any peculiarities of this pain characteristic of any of the affections mentioned, and you may describe the one other sign you have chosen, provided you do not in your description introduce other symptoms or physical signs. The object of this question is not to obtain a complete differential diagnosis, but rather to test your judgment as to the relative value of diagnostic signs. 4. (*a*) What conditions, aside from the blood picture, would strongly suggest the diagnosis of pernicious anemia in a relatively early stage in a man of 35 years? (*b*) What would you expect to find in the blood picture at this stage of the disease? 5. In the case of a healthy child, 3 months old, the mother's supply of breast milk is noticeably diminishing, and it is also desirable from the point of view of the mother's health to wean the baby promptly. Artificial feeding is necessary. (*a*) State, with sufficient detail, the directions you would give (for both mother and child) to accomplish this result. (*b*) Outline briefly your plans for feeding this child up to the age of 1 year. 6. A man of 68, in good health and with a urine that is essentially normal, undergoes a prostatectomy by the suprapubic route. The healing of the wound and the functional results are satisfactory; but a slight fever, which began a few days after the operation, still persists at the end of four weeks and reaches about 100 daily. No signs of local infection outside the genito-urinary tract can be found, and the physical signs are negative. He passes a moderate amount of cloudy urine, which shows a moderate amount of pus under the microscope; it is faintly acid and of normal specific gravity. In a culture from a catheterized specimen of urine the colon bacillus is the predominating organism. (*a*) What evidence in the urine would indicate the involvement of the pelvis of the kidney? (*b*) Of the kidney itself? (*c*) What would be your treatment of this case? (Give your reasons briefly.) 7. What combination of symptoms and physical signs would strongly suggest the existence of epidemic encephalitis (encephalitis lethargica)?

SURGERY

Answer any five of these questions: 1. Discuss the symptoms and signs produced by various types and grades of thyroid toxemia. 2. Discuss the differential diagnosis of pyloric obstruction due to: (*a*) callous ulcer of the stomach; (*b*) carcinoma of the stomach; (*c*) adhesions from gallbladder disease. 3. Discuss the differential diagnosis, pathology and treatment of Colles' fracture. 4. Discuss symptoms, treatment and possible sequelae of fracture of the base of the skull. 5. Discuss the surgical conditions of the testicle, giving diagnosis and treatment. 6. Discuss the surgical indications for the removal of the spleen and state the effect on the respective diseases.

OBSTETRICS

Answer all questions. 1. What are the diagnostic signs by physical examination of a pregnancy at the fifth or sixth month: (*a*) Complicated by uterine myomata? (*b*) Complicated by an ovarian cyst? 2. Describe in detail the mechanical causes for the following movements in the mechanism of labor: (*a*) Flexion of the head, vertex L. O. A. (*b*) Internal rotation of the head, vertex L. O. A. (*c*) Internal rotation of the head, vertex R. O. P. 3. Give the clinical history of a mild toxemia at about the eighth month of pregnancy and the management of the case. 4. Define, and give the indications for each of the following operations: (*a*) High forceps operation. (*b*) Mid forceps operation. (*c*) Low forceps operation. (*d*) Internal podalic version.

GYNECOLOGY

Answer all questions. 1. Diagnosis and treatment of a chronic gonorrheal endocervicitis. Diagnosis of cure in such a patient. 2. What measures should be employed in the prevention and treatment of "gas pains" following operations. Differentiate from ileus. 3. Describe the technique for operation for cystocele, omitting repair of the pelvic floor. 4. Name the various causes of vesical irritation in the female and give the differential diagnosis. 5. (*a*) What is subinvolution of the uterus? (*b*) What are the causes and results of this condition? (*c*) What is the treatment?

PUBLIC HEALTH

HYGIENE

Answer all questions. 1. Name the diseases caused by dietary deficiency and describe the prevention and cure of one of them. 2. Discuss the medical factors in the control of syphilis and gonorrhea. 3. Discuss the place of gaseous and liquid disinfectants in aiding in the control of disease. 4. What acute infectious diseases are carried by milk, and what are the characteristic features of milk-borne outbreaks of these diseases? 5. Discuss the significance of colon bacilli in a water supply. 6. Discuss the definitely useful fields of preventive vaccination or inoculation.

MEDICAL JURISPRUDENCE

Answer all questions. 1. How would you determine whether death was due to drowning, or to other causes, in a body removed from a river or lake? 2. Give antidotes and treatment for poisoning by arsenic, bichloride of mercury and carbolic acid. 3. How would you distinguish between antemortem and postmortem wounds? 4. Discuss the manifestations of wood-alcohol poisoning. 5. Technique in delivery of the shoulders and after-coming head in a breech presentation.

Miscellany

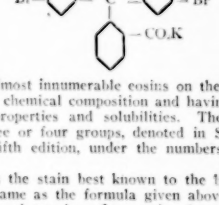
AMERICAN EOSINS

S. I. KORNHAUSER, F. W. MALLORY, F. G. NOYY, L. W. SHARP AND H. J. CONN, CHAIRMAN

Committee on Standardization of Biological Stains,
National Research Council

In a recent report of this committee,[1] it was mentioned that a number of satisfactory samples of eosin had been obtained from American sources. At the time this early report was published, no very definite data were at hand to show how these compared with samples of Grübler's eosin. At the present time, however, data have begun to accumulate giving a more satisfactory survey of the whole situation, and it seems opportune to publish them.

Eosin is a compound of the phthalein series, with a formula essentially as follows:



There are almost innumerable eosins on the market, varying slightly in chemical composition and having quite different staining properties and solubilities. They are usually classed in three or four groups, denoted in Schultz's Farbstofftabellen, fifth edition, under the numbers 587, 588, 589 and 590.

Eosin 587 is the stain best known to the biologist. It is typically the same as the formula given above; namely, the potassium salt of tetrabromfluorescein; but the monobrom and dibrom derivatives are also known, and as they sometimes occur mixed with the tetrabrom compound, the composition of this dye varies somewhat. Its color varies accordingly, because the more bromin atoms, the bluer the shade. This dye is specified in the trade by such terms as eosin, yellowish eosin, eosin Y, and eosin G, water-soluble eosin, eosin W, eosin Y extra and eosin S extra.

Eosin 588 and 589 are both known as alcohol-soluble eosin, being but slightly soluble in water; but they differ from each other in that 588 contains a methyl group in the place of one of the potassium atoms in the foregoing formula, while 589 contains an ethyl group in the same position. Number 588 is more correctly called methyl eosin, while 589 is called eosin S or primrose.

Eosin 590 is a compound in which two of the bromin atoms have been replaced by NO_2 groups. This compound, like 587, is readily soluble in water, but differs from it in its bluish color. It is known as bluish eosin, eosin B or eosin BN.

It must be understood that with such great variation in the possible composition, every manufacturer puts on the market a product slightly different from that of any other, and, as these compounds differ in shade, each different product is generally known by its own trade designation. This gives the very confusing list of designations applied to eosin, of which those mentioned above are merely the commoner ones. It simplifies matters, however, if it is remembered that the terms eosin, yellowish eosin or water-soluble eosin refer to 587, while alcohol-soluble eosin refers to 588 or 589, and bluish eosin to 590.

No attempt was made in this work to get uniformity in the technic that was used, each collaborator being asked to use the samples for any purpose and according to any technic with which he was familiar. One of the investigators, in fact, reports five different tests to which he submitted the samples. As a result, these samples have been tested in a great variety of ways, and although it is hardly to be expected that the reports would be uniform under such conditions, it

1. Committee on Standardization of Biological Stains: Preliminary Report on American Biological Stains, Science, N. S. **36**: 156-160.

is felt, nevertheless, that they have considerable value on account of the number of different methods by which the samples were tested. One of the collaborators tested the samples by the simple staining of bacteria; two used them for counter-staining in the Gram technic for staining bacteria. In three cases, they have been tested in blood stains, in one case with hematoxylin, in another with methylene blue in the well-known Wright method, and in the third without combination with any other dye. Three of the investigators used the samples in tissue staining as a counter-stain against hematoxylin. One of the investigators, besides using the eosin in blood work and as a counter-stain in the Gram technic, reports results obtained in staining cultures of *Penicillium*. These cultures, after being killed and fixed, were stained in mass, then mounted and examined. Lastly, another collaborator reports using the samples in two indicator mediums, one with brilliant green and the other with methylene blue.

The variety of these methods is sufficient, so that there is good reason to feel that any sample which gave good results in all cases can be safely recommended. It was very clearly demonstrated that, in the great variety of purposes for which these samples of eosin have been used, the American samples, almost without exception, are the best. Some may be slightly better than others for certain special purposes, but there seems to be no reason for condemning any of them.

Satisfactory samples were obtained from the following American concerns: Eimer and Amend, Harmer Laboratories Company, Heller and Merz Company, New York Color and Chemical Company, Providence Chemical Company, Darwin Chemical Company, Campbell & Co., Geigy Chemical Laboratory, Coleman and Bell Company, H. S. Laboratories, E. Leitz, National Anilin and Chemical Company, and D. H. Pond.

The chairman of the committee is ready on request to furnish investigators with information as to the apparent merits of each of these samples for particular purposes and as to how any particular one of these lots of eosin may be obtained.

Book Notices

PROTEINS AND THE THEORY OF COLLOIDAL BEHAVIOR. By Jacques Loeb. Cloth. Price, $3. Pp. 292, with 80 illustrations. New York: McGraw-Hill Book Company, Inc., 1922.

The work of Dr. Jacques Loeb, first at the University of Chicago and later at the Rockefeller Institute for Medical Research, has been a constant stimulus to advanced workers in physical and biologic chemistry. Particularly absorbing has been that phase dealing with colloidal chemistry. This volume epitomizes his work on the subject, and includes much heretofore unpublished material; it is written, however, from the point of view of one presenting his case rather than as a textbook. As Loeb points out, colloid chemistry has been developed on the assumption that the ultimate unit in colloidal solutions is not the isolated molecule or ion, but an aggregate of molecules or ions. As it seemed improbable that such aggregates react with acids, alkalis or salt in stoichiometric proportions, the theory advanced, and generally accepted today, was that eletrolytes are adsorbed on the surfaces of colloidal particles according to a purely empiric formula. On this point Loeb takes vigorous issue; he believes that the adsorption hypothesis was adopted, in the main, because of the failure to measure the hydrogen ion concentration of the protein solutions. Hence the postulate is advanced by Loeb that the proteins do obey the stoichiometric laws of chemistry, and that the chemistry of proteins does not differ from the chemistry of crystalloids. His chief proof for the assertion is the behavior of protein salts, particularly gelatin; and approximately the first half of the book is devoted to the stoichiometric arguments in favor of this view. Loeb shows that gelatin forms gelatin chlorid or sodium gelatinate, substances that are ionizable and have mathematical characteristics of salts. At this point, Loeb's critics, as exemplified by Jerome Alexander, point out that the gelatin is not a pure substance, that the molecular weight estimations by various authors vary immensely, and that it is a basic error to use products not thoroughly defined as chemical entities. On the other hand, the proponents, such as J. A. Wilson, believe that the ionizable form of gelatin chlorid is substantiated in a number of quantitative ways; therefore, Loeb's school argues, whether or not the gelatin used by Loeb was a mixture of proteins of variable molecular weight does not affect the fundamental conception. The other argument advanced in the book is that colloidal behavior is based on Donnan's theory; adapting this theory to his problem, Loeb advances what he is pleased to term a "quantitative mathematical and rationalistic explanation," expressing the influence of hydrogen ion concentration, valency of ions and concentration of electrolytes on colloidal behavior, including the effects of electrical charges, osmotic pressure, swelling, viscosity and stability of solution. "Thus," concludes the author, "What was at first believed to be a new type of chemistry, namely, colloid chemistry, with laws different from those of general chemistry now seems to have been only an unrecognized equilibrum condition of classical chemistry, at least as far as proteins are concerned. This does not detract from the importance of colloidal behavior for physical and technical problems, but it completely changes the theoretical treatment of the subject." The book is well printed, and is profusely illustrated with coordinate charts. The theory constitutes a bold step, and is presented with the dynamic quality of an enthusiastic researcher. No one interested in the theory of the colloidal state can afford to overlook this contribution.

HEALTH SERVICE IN INDUSTRY. By W. Irving Clark, Jr., M.D., F.A.C.S., Lecturer on Health Administration in Industry, Harvard Medical School. Cloth. Price, $2. Pp. 168, with illustrations. New York: The Macmillan Company, 1922.

To the physician who contemplates entering industrial medicine, Dr. Clark holds forth an abundant opportunity to study disease in its inception, to follow chronic disease throughout its course, and to earn, net, for full time service, from an initial $1,800 a year up to a possible $10,000 a year or more. To the employer, he offers, for an expenditure of six dollars or so a year for each employee, more efficient and contented workmen, a diminished labor turnover, and a larger output or one produced at a lower cost. In the author's experience, flatfoot has been found to be a theoretical rather than a real detriment to good work. Men with even well marked hernias may work for years without trouble, but "it is safe to say that all southern Europeans who have previously done light work are very liable to develop a hernia if put on a heavy job." A worker with unmistakable cardiac murmurs and even irregularities may stand moderate work for a number of years before showing signs of disturbed compensation, but in examination of applicants for employment generally and in all other cases, the author insists, the physician should pay the closest attention to the condition of the myocardium. The directions for the treatment of emergencies—some formulated by the author and others given his approval by incorporation as quotations—call for clarification, and particularly for enlargement with respect to methods for recognizing the nature of the particular injury that presents itself. Physicians, nurses and trained first-aid helpers may be able to recognize the nature of a case, just as they would be able to treat it, without having printed directions before them. But how is a more or less inexperienced employee to determine whether his injured fellow workman is suffering from a sprain, a dislocation or a fracture, so as to know which of the available printed directions apply to the case? How is he to know whether the case before him is one of heat prostration or of shock? What is he to do if he does not know? Aside from the question of the recognition of the nature of the emergency, directions for treatment should in every case come as near being fool-proof as is practicable, and it is not clear that some of those set forth by the author conform to this ideal. The book may well be carefully studied—it is hardly a book to be simply read—by all who are responsible for the organization and management of industrial enterprises, and by physicians connected or desiring to be connected with such enterprises.

Medicolegal

Chiropractors Cannot Give Medical Certificates of Death

(State ex rel. Wentworth v. Fahey et al. (Minn.), 188 N. W. R. 260)

The Supreme Court of Minnesota, in affirming an order sustaining a demurrer to an alternative writ of mandamus, says that it was sought to compel the registrar of vital statistics of Duluth and the state registrar of vital statisics to file a certificate of death given by the relator, a chiropractor. The Minnesota statute requires, in case of death, "a medical certificate subscribed by the attending physician." The certificate must give the disease or injury, the contributing cause or complication, duration of illness and other particulars. The question was whether a chiropractor is an attending physician within the meaning of the statute. By Section 2 of Chapter 64 of Minnesota Laws of 1919, chiropractic is defined as "the science of adjusting any abnormal articulations of the human body, especially those of the spinal column, for the purpose of giving freedom of action to impinged nerves that may cause pain or deranged function." By Section 8, chiropractors are subject to the same rules and regulations that govern other licensed doctors or physicians in the control of contagious and infectious diseases, and are entitled to the rights and privileges of other doctors and physicians in matters pertaining to the public health; but they may not prescribe internal drugs nor practice surgery or obstetrics; and their practice is declared not to be the practice of medicine, surgery or osteopathy. The certificate of death required is a "medical" certificate. For many years, this has been understood as the certificate of a medical man of general scientific attainments in the profession of medicine. The chiropractor can practice only in a limited field. His diagnosis or practice cannot cover the general field of medicine or surgery. One purpose of the statute, though not the only one, is the preservation of vital statistics. It could not well be claimed that a chiropractor was regarded under the statute as one qualified to furnish a medical certificate, were it not for the provisions of Section 8. That section is borrowed from another statute, and is so uncertain of meaning that this court cannot hold that it was intended to qualify a chiropractor to give the certificate. On the other hand, it can be urged with some force that the statute recognizing chiropractic and licensing chiropractors intends that, when they are attending physicians, they may give death certificates. The view of this court is otherwise, and it holds that a chiropractor cannot give the required medical certificate.

Requests for Physical Examinations Must Be Timely

(O'Brien v. Sullivan (Neb.), 186 N. W. R. 532)

The Supreme Court of Nebraska, in affirming a judgment in favor of the plaintiff for $1,500 damages for assault and battery, says that, after the case was called for trial and the impaneling of the jury commenced, a motion was made for an order for a physical examination of the plaintiff. The motion was overruled on account of the delay in the trial that would result from such examination at that time and because no reason was shown for the delay in making the application for the examination. There was no abuse of discretion in the ruling. In an action for damages for personal injuries, it is proper for the trial court to order a physical examination of the injured party by competent physicians and surgeons, to ascertain the character and extent of the alleged injuries. In such case, however, the application must be timely. When a request for a physical examination of the injured party is made after the trial has commenced, it is within the sound discretion of the trial court whether the request be granted. In such case, the ruling of the court will not be disturbed unless there appears to be an abuse of discretion. If a personal examination is desired, the better practice is to make the application before the trial begins, and to have experts agreed on by the parties or appointed by the court.

Society Proceedings

COMING MEETINGS

American Physiological Society, Toronto, Canada, Dec. 28-30. Dr. Chas. W. Greene, University of Missouri, Columbia, Secretary.
Hawaii, Medical Society of, Honolulu, Nov. 19-21. Dr. F. J. Pinkerton, 45-46 Young Building, Honolulu, Secretary.
Isthmian Canal Zone, Medical Association of, Ancon, Dec. 15. Dr. L. S. Chapman, Ancon, Secretary.
Philippine Islands Medical Association, Manila, Dec. 20-22, 1922. Dr. I. Concepcion, College of Medicine and Surgery, Manila, Secretary.
Porto Rico, Medical Association of, Ponce, Dec. 15-17. Dr. Augustin R. Laugier, San Juan, Secretary.
Radiological Society of North America, Detroit, Mich., Dec. 4-8. Dr. M. J. Sandborn, Appleton, Wis., Secretary.
Society of American Bacteriologists, Detroit, Dec. 27-29. Dr. A. P. Hitchens, Army Medical School, Washington, D. C., Secretary.
Southern Medical Association, Chattanooga, Tennessee, Nov. 13-16. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.
Southern Surgical Association, Memphis, Tenn., Dec. 12-14. Dr. H. A. Royster, Raleigh, N. C., Secretary.
Western Surgical Association, Minneapolis, Minn., Dec. 8-9. Dr. Warren A. Dennis, Hamm Building, St. Paul, Secretary.

MINNESOTA STATE MEDICAL ASSOCIATION

Fifty-Fourth Annual Meeting, held at Minneapolis, Oct. 12-14, 1922

The President, DR. J. FRANK CORBETT, Minneapolis, in the Chair

Congenital Hypertrophic Pyloric Stenosis

DR. ARTHUR C. STRACHAUER, Minneapolis: Congenital hypertrophic pyloric stenosis consists in a massive hypertrophy of the circular muscles of the pylorus, causing a true stenosis of the pyloric canal and a mechanical obstruction to the outlet of the stomach. This hypertrophy results in the development of a noninflammatory, sharply defined pyloric mass, measuring from three-quarters inch to an inch (1.8 to 2.5 cm.) or more in length, and from five-sixteenths to seven-sixteenths inch (7.8 to 11 mm.) in diameter, of a firm, nearly cartilaginous consistency, covered with smooth, glistening peritoneum, free from adhesions, and having a whitish, pale color as compared with the rest of the stomach and duodenum. The condition occurs most frequently in male, breast-fed infants, the symptoms beginning at the end of the second week of life and becoming alarming by the third week. Cases referred to the pediatrician and surgeon are seen most frequently at the fourth and fifth week. There is no field of surgical endeavor in which close cooperation between the physician and surgeon is more important than in the surgery of infancy. In my cases, the selection of the surgical cases and recommendation for surgery has been made by the pediatrician. The operation should be performed rapidly and delicately, with minimal traumatization to the infant. A trained surgical team is indispensable to smooth and rapid work. The Rammstedt operation is indicated in practically all cases which have not responded to medical management. Preoperative and postoperative treatment is absolutely essential to success.

Diverticulitis of the Colon

DR. JOHN T. ROGERS, St. Paul: In the treatment of diverticulitis, one must be guided by the severity and importance of the symptoms and the history in the case under consideration. Dudley Roberts stresses the importance of medical treatment and advises laxatives, vegetable diet, daily doses of mineral oil and agar, small injections of warm water, large doses of bismuth weekly by enema or by mouth, injection of hot gelatin, 8 ounces (240 c.c.) of a 10 per cent. solution introduced into the sigmoid at a temperature of 120 F., antispasmodics and atropin three times a day. He claims that surgery is only indicated for sequelae. In chronic cases located in the sigmoid, recurrent in character, such a regimen might be advocated when the patient is under constant surveillance. Otherwise, I should hesitate to take the responsibility for medical treatment in any given case, except, perhaps, in cases of very obese subjects, in whom an excision of the colon is an extremely formidable and dangerous undertaking. Recognizing the possibilities of an acutely inflamed diverticulum, my judgment would lead me to operate as soon

as the diagnosis is sufficiently certain to justify operation. Excision of a single, or of several diverticuli, can be performed safely. In the hyperplastic inflammatory forms of multiple diverticuli and small abscesses, drainage is all that is necessary. When a vesical fistula has formed, the operation is more formidable and will possibly require resection of the sigmoid, as well as excision of a portion of the bladder wall. In cases of obstruction, if the conditions found justify the attempt, excision and end-to-end anastomosis will be the proper procedure. If conditions are such that the danger of primary resection is too great, a colostomy above the diseased area is advisable, and a resection made later when the infection has subsided. If the disease is so located that a Mikulicz three-stage operation can be performed, it may seem advisable, as the mortality from this operation is much lower than that from primary resection.

Surgery in Infantile Paralysis

DR. MELVIN S. HENDERSON, Rochester: Surgery is indicated only in the residual paralysis following poliomyelitis, and only about 25 per cent. of such patients can be helped by surgical procedures. As a rule, manipulations precede tenotomies, and manipulations with tenotomies precede osteotomies, the last named being resorted to only for correction of skeletal deformities. Arthrodeses are occasionally indicated, but should be performed only after a careful consideration of the power left, so that the patient may use the fixed point to advantage. Last, but by no means least, the social status and the habits of the patient are to be considered seriously. Plastic operations on tendons are useful, but are applicable in only a small percentage of cases. A weak muscle must not be expected to do the work of a stronger muscle, particularly when it is placed in a new position and is usually at a mechanical disadvantage. Astragalectomy is the operation of choice for calcaneovalgus, and in certain other conditions, but should always be accompanied by a posterior displacement of the foot.

The Tonsil Question: Roentgen Ray and Radium Therapy in Treatment of Pathologic Tonsils

DR. F. S. BISSELL and DR. FLOYD GRAVE, Minneapolis: A study of more than 30,000 patients from various sources, one to four years after operation, shows permanent results in only about one half of the total number. The tonsil has some function, and greater care should be taken to preserve this, especially in childhood. Roentgen ray and radium offer a safe method of treatment in carefully selected cases. Results have been most striking in children and adults of a decided lymphoid hyperplasia type, also in patients with cervical adenitis associated with a pathologic condition of the tonsil. Longer study is needed to prove the permanent disappearance of all symptoms accompanying tonsil and adenoid diseases, and further investigation on the types of tonsils best suited to this form of therapy.

Heliotherapy in Infectious Diseases of the Bones and Joints

DR. EMIL S. GEIST, Minneapolis: There are a number of other chronic infections besides tuberculosis which are advantageously affected by the rays of the sun properly used. There exist few dangers in the application of heliotherapy. Heliotherapy can be used in the home. It is preferable in the institution. I believe the time has come for us to see to it that hospitals use their roofs and porches and surrounding grounds for the application of heliotherapy.

Traumatic Rupture of the Normal Spleen

DR. EMIL C. ROBITSHEK, Minneapolis: Traumatic rupture of the spleen occurs much more frequently in males than in females. One half of the cases occur in children and young adults. No pathognomonic symptoms exist. In general, the symptoms are those of hemorrhage. Splenectomy, performed early, is probably the most reasonable and most efficient treatment.

Cerebral Pneumography as an Aid in the Early Diagnosis of Hydrocephalus

DR. OSWALD S. WYATT, Minneapolis: Cerebral pneumography or ventriculography is a most valuable aid in the diagnosis of intracranial conditions. It definitely divides hydrocephalus into two types; namely, external hydrocephalus and internal hydrocephalus. It further divides internal hydrocephalus into obstructive and communicating internal hydrocephalus. It definitely localizes the lesion in obstructive hydrocephalus. It is a guide to surgical intervention in these cases.

Injuries to the Lower Birth Canal

DR. JAMES R. MANLEY, Duluth: I use the deep lateral episiotomy in rather high forceps cases when arrest of the head has taken place before it has reached the floor, and before it has had a chance to distend it. The median episiotomy is used in spontaneous cases when needed, after the perineum is well distended, and when I think a tear will occur. The median cut is sufficient here, and is much easier to repair. I believe that the lateral cut is much better in cases in which the disproportion is so great as to endanger the rectum, as the lateral episiotomy injury to the rectum should never occur. I am not prepared to follow Dr. De Lee entirely in his routine use of episiotomy and forceps; nor am I prepared to follow Potter in his use of version in all cases; but I have found their methods of protecting the lower birth canal from permanent injury very satisfactory.

Surgery of Acute Gallbladder Conditions

DR. EDWARD S. JUDD, Rochester: Gallstones and cholecystitis should no longer be considered separately. The infection in the gallbladder is merely part of an infection which involves several other tissues. Acute perforation of the gallbladder, with general soiling of the abdomen, does not often occur; but chronic perforation and fistula formation into the duodenum, stomach or colon is not rare. It is advisable to remove an acutely inflamed gallbladder if the liver and pancreas are not extensively affected, and if there are no calculi in the common duct.

Diagnosis and Treatment of Ureteral Calculi

DR. GILBERT J. THOMAS, Minneapolis: Infection is one of the factors in the production of renal and ureteral stone. The diagnosis may not be easy. Ureteral stone must be thought of when considering abdominal pain. Differential functional tests do not indicate the true functional capacity of a kidney which has been temporarily damaged because of ureteral stone. A patient may pass a ureteral stone that is too small to cast a shadow. A ureteral stone may be silent in its passage through the ureter. A calculus may remain in the ureter for months without producing pain or permanent damage to the kidney. From 90 to 95 per cent. of ureteral stones pass spontaneously or can be removed by manipulation. A permanent ureteral catheter produces dilatation, relieves pain and facilitates the easy and quick passage of a ureteral stone. Not more than 10 per cent. of ureteral stones require operation. Be sure the patient has a stone before you operate. The position of the calculus indicates the type of operation to be performed. After-treatment which includes removal of all foci of infection and lavage of the kidney pelvis is important.

Bladder Stone Removed by Lithotrity

DR. JOHN L. CRENSHAW, Rochester: The mortality of litholapaxy is much lower than that of cystostomy, and the period of hospitalization is shorter. The difference in mortality more than compensates for the moderate increase in recurrences following litholapaxy. The use of caudal anesthesia and permanent urethral drainage renders the lithotrite available to a large group of patients who would formerly have been subjected to the greater risk of cystostomy.

Essentials in the Treatment of Peritonitis

DR. DONALD K. BACON, St. Paul: The treatment of peritonitis should include: drainage in accordance with the focus and extent of infection, based on the anatomic configuration of the peritoneum; administration of nothing by mouth; morphin at frequent intervals, but not to exceed the point where the respirations are reduced to fourteen per minute; application of large hot stupes or an ice bag to the abdomen; maintenance of Fowler's position, and hypodermoclysis or intravenous injection of 4,000 c.c. of saline every twenty-four hours, and more if the indications arise.

(To be continued)

V. 192

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

October, 1922, **5**, No. 10

How to Know Blood Pressure in Vessels of Retina. A. P. Magitot, Paris.—p. 777.
Epidemic Encephalitis From Standpoint of Ophthalmologist. G. F. Libby, Denver, Colo.—p. 785.
Sympathetic Iridocyclitis. D. F. Harbridge, Phoenix, Ariz.—p. 791.
Trachoma and End Results. J. H. Burleson, San Antonio, Tex.—p. 799.
Case of Pulsating Exophthalmos. R. A. Fenton, Portland, Ore.—p. 802.
Changes in Refraction. H. Friedenwald, Baltimore.—p. 802.
Central Scotoma with Pyorrhea. A. G. Hovde, Superior, Wis.—p. 804.

American Journal of Public Health, Chicago

October, 1922, **12**, No. 10

Public Health Education.—p. 815.
School Hygiene Under Boards of Education. T. E. Finegan.—p. 828.
School Hygiene Under Board of Health. S. J. Baker, New York.—p. 832.
Local Health Boards and Medical Milk Commissions. D. W. Horn, Bryn Mawr, Pa.—p. 837.

Annals of Surgery, Philadelphia

October, 1922, **74**, No. 4

Significance of Bacteria in Blood Stream from a Surgical Standpoint. W. Martin, New York.—p. 421.
Peritoneal Manifestations of Chronic Multiple Serositis, Concato's Disease. W. J. Mayo, Rochester, Minn.—p. 432.
Thyroid Surgery and the Dementia praecox Syndrome. J. R. Eastman and N. Eastman, Indianapolis.—p. 438.
Congenital Hypertrophic Stenosis of Pylorus in the Adult. J. C. Oliver, Cincinnati.—p. 444.
*Surgical Treatment of Syphilis of the Stomach. E. A. Graham, St. Louis.—p. 449.
Late Results of Gastro-Enterostomy for Gastric and Duodenal Ulcers Including Acute Perforated Ulcers. E. H. Pool and P. A. Dineen, New York.—p. 457.
End Results of Operations for Gastric and Duodenal Ulcer and Cancer. G. W. Crile, Cleveland.—p. 467.
Peptic Ulcer. J. B. Deaver, Philadelphia.—p. 473.
Choice of Operation for Gastric Ulcer in View of Late Results. G. Woolsey, New York.—p. 476.
Bacteriologic Study of Fluid Contents of 100 Gallbladders Removed at Operation. J. G. Drennan, Rochester, Minn.—p. 482.
Traumatic Pancreatitis. E. Drennen, Birmingham, Ala.—p. 488.
*Faulty Rotation of Intestine. C. A. Hamann, Cleveland.—p. 491.
*Prolapse of Rectum in Children. E. G. Alexander, Philadelphia.—p. 496.
Treatment of Cancer of the Rectum. R. C. Coffey, Portland, Ore.—p. 500.
Surgical Relief of Intestinal Foci of Infection in Cases of Arthritis Deformans. R. Smith, Los Angeles.—p. 515.
Ligation of Aorta. G. T. Vaughan, Washington, D. C.—p. 519.
Ligation of Internal Iliac for Enormous Gluteal Aneurysm. W. D. Haggard, Nashville, Tenn.—p. 520.
Peripheral Nerve Injuries Associated with Fractures. D. Lewis and E. M. Miller, Chicago.—p. 528.
Bone Formation in Operative Wound Cicatrices. W. M. Jones, St. Louis.—p. 539.
Intussusception of Stoma Following Gastro-Enterostomy. R. Lewisohn, New York.—p. 543.

Surgical Treatment of Syphilis of Stomach.—In the study of thirty-four cases (including thirty-two from the literature and two from his own series) Graham says resection of the pylorus gave uniformly good results in cases of stenosis of that orifice, while gastro-enterostomy was frequently followed by only slight or temporary improvement. It would seem, therefore, that pylorectomy is more likely to be followed by complete relief of symptoms than is simple gastro-enterostomy, although a study of more cases may show that the latter operation is sufficient in cases of actual stenosis of the pylorus. There will remain certain cases without organic obstruction in which surgical measures will probably not be indicated.

Faulty Rotation of Intestine.—Hamann reports a case of a persistent common mesentery of the large and small intestine, the cecum having reached the right iliac fossa but had not become fixed. After operation there occurred a volvulus from right to left around the narrow mesentery resulting in obstruction at the lower end of the duodenum causing epigastric distention and vomiting, but no distention of the lower abdomen.

Prolapse of Rectum in Children.—Alexander's patient was 13 months of age. The prolapse of the rectum had been noticed when the child was 3 weeks old and had been gradually increasing. The prolapse was down from 8 to 10 cm., and was ulcerated and edematous. Accompanying symptoms were tenesmus, frequent watery mucus stools and general weakness. The rectum could not be replaced without an anesthetic on account of straining. When replaced under anesthesia the prolapse immediately recurred. After many unsuccessful attempts to keep the rectum in place by means of strapping the buttocks, the prolapse was finally allowed to remain down and kept clean with boric acid ointment and every effort was then directed toward improving the child's general condition, which was so poor that operation could not be attempted. Two months after admission, the general condition having greatly improved, Alexander decided to attempt reduction and fixation of the rectum by means of absolute alcohol, according to D'Espine's technic. The second day after operation the baby had three small constipated bowel movements but the rectum did not come down, nor was there any prolapse after that, in spite of the administration, at various times, of castor oil, calomel and cascara. Roentgen-ray studies of the intestinal tract and spine revealed no abnormalities.

Archives of Internal Medicine, Chicago

October, 1922, **30**, No. 4

*Studies on Visceral Sensory Nervous System: XIV. Reflex Control of Cardia and Lower Esophagus in Mammals. A. J. Carlson, T. E. Boyd and J. F. Pearcy, Chicago.—p. 409.
Electrocardiography and Prognosis: I. Significant T Wave Negativity in Isolated and Combined Derivations of Electrocardiogram. F. A. Willius, Rochester, Minn.—p. 434.
*Clinical Studies of Quinidin: II. Alterations in Cardiac Mechanism After Administration of Quinidin to Patients with Auricular Fibrillation; Certain Toxic Effects of Drug. R. L. Levy, New York.—p. 451.
*Study of Erythrocyte Curve at Various Ages and Its Relationship to Hemoglobin Curve. L. H. Mayers, Chicago.—p. 478.
*Intravitam Bone Marrow Studies: Preliminary Report: Part I. Description of a Marrow Trephine and Experimental Studies. L. M. Morris, and E. H. Falconer, San Francisco.—p. 485.
*Id. Part II. Survey of Clinical Field. L. M. Morris and E. H. Falconer, San Francisco.—p. 490.
*Basal Metabolism in Nontoxic Goiter and in Borderline Thyroid Cases. J. H. Means and H. W. Burgess, Boston.—p. 507.
Alkalimetry of Whole Blood: Second Paper: Acid Fixing Power of Blood in Renal Disease. J. B. Rieger and H. A. Freund, Detroit.—p. 517.

Reflex Control of Cardia and Lower Esophagus.—It is shown by Carlson, Boyd and Pearcy that in normal dogs, not under anesthesia, the tonus of the cardia is temporarily inhibited by stimulation of sensory nerves in the mouth and pharynx and by stimulation of nerves in the gastric mucosa. The tonus of the cardia is increased by sudden distension of the walls of the stomach, by intravenous injection of small quantities of cocain, during gastric digestion by some factor other than the acidity of the gastric contents. The tonus of the cardia runs parallel with the tonus and hunger contractions of the empty stomach. In dogs and cats under light ether anesthesia, ether and curare, or decerebration, it is shown that reflex inhibition or contraction of the cardia and lower esophagus can be initiated by the stimulation of any sensory nerve, skeletal or visceral. When the vagi are intact stimulation of the sensory nerves in the mouth, pharynx, esophageal and gastric mucosa induces on the whole inhibition of the cardia, followed by contraction. Stimulation of the afferents from the abdominal viscera (gallbladder, intestine, urinary bladder, central end of one splanchnic nerve) induces, on the whole, reflex contraction of the cardia and lower esophagus, even when both vagus nerves are sectioned. When the tonus of the cardia is feeble, the motor reflexes into the cardia predominate, when the cardia is hypertonic the inhibitory reflexes prevail. Strong stimulation, particularly of the abdominal viscera or the central end of the splanchnic nerve, may cause strong spasm of the cardia and lower esophagus lasting from ten to thirty minutes. The authors urge that the demonstration of motor and inhibitory innervation of the lower esophagus via the splanchnic nerves, and the confirmation and extension of Openchowski's observations on the reflex control of the cardia and lower esophagus should be noted in clinical cardiospasm.

Quinidin in Auricular Fibrillation.—An electrocardiographic study has been made by Levy of eleven patients with auricular fibrillation who received quinidin sulphate by mouth. In three patients, to whom quinidin was given on twelve occasions, the normal rhythm was restored nine times. In eight patients, to whom the drug was given on eleven occasions, restoration of the normal rhythm was not accomplished. In the cases in which normal rhythm was established, the first effect noted was usually acceleration of ventricular rate; next in order came ectopic ventricular beats. The transitional mechanisms in the common order of appearance were: coarser fibrillation, denoting retardation of auricular rate, impure flutter, flutter and normal rhythm. The occurrence of variations in the form of P waves, ectopic auricular contractions, auricular tachycardia and sino-auricular block after resumption of the sinus rhythm, is adduced as evidence that there is, even at this time, a tendency for the impulse to be initiated at a point other than at the sinus node and to traverse an unusual path in its course through the auricle. Both auricular and ventricular premature beats could, on occasion, be abolished by further exhibition of the drug. In the cases in which restoration of the normal mechanism was not accomplished, evidences of the undesirable action of quinidin were more frequently observed. Tachycardia was troublesome and in one instance was followed by signs and symptoms of heart failure. The close interrelationship of fibrillation, impure flutter and flutter was evident in that rapid change from one of these mechanisms to the other was frequently seen. This observation lends support to the concept that they are all dependent on the same basic disturbance, namely, a circus contraction in the auricles. Ectopic ventricular beats were seen after quinidin in all of the eight cases under discussion. These occurred at times in such fashion as to cause coupled rhythm. After the continued administration of quinidin, paroxysms of ectopic ventricular tachycardia sometimes ensued. This arrhythmia is significant for the clinician; for in dogs injected with digitalis or strophanthin it is not infrequently the precursor of ventricular fibrillation and death. In the three cases in which this mechanism was seen, the paroxysms were fortunately of short duration. In certain patients, quinidin is a toxic substance for heart muscle, even in doses ordinarily regarded as safe for clinical use. Carefully administered, the drug possesses great therapeutic virtue, whereas unintelligently given, it may be expected to cause undesirable effects.

Relation of Erythrocyte and Hemoglobin Curves.—The red blood count made by Mayers in a series of forty-one infants, in thirty-seven of whom it was taken at time of delivery, averaged 7,630,000. The blood count in children, 1 and 2 years of age, is somewhat higher than in the adult, this being in marked contrast to the great drop in hemoglobin which is shown in Williamson's table. Inasmuch as the curves of corpuscles and the hemoglobin do not run parallel to each other, the question is raised as to whether the low hemoglobin values are to be regarded as strictly normal or whether it might be altered by a different plan of infant feeding. The norm employed in determining the color index of adults does not apply in determining the color index of children under 10 years of age.

Intravitam Bone Marrow Studies.—An instrument has been devised by Morris and Falconer for perforating the cortex of the long bones in animals and human beings to obtain specimens of living marrow for histologic study. The specimens of marrow obtained by this method are satisfactory for microscopic study, but occasional dilution with blood makes the specimen difficult to interpret. The smears from the marrow checked up with postmortem preparations fixed and sectioned.

Study of Bone Marrow in Pernicious Anemia.—Marrow puncture was performed by Morris and Falconer in five cases of pernicious anemia. Three of these cases showed a red marrow with few cells and no signs of division. These three cases were of long standing and had been in a state of relapse for several months. Two patients survived the last puncture only about six weeks; one lived for about three months after examination of the marrow. One case presented a pinkish grey marrow, with a moderate amount of cellular activity and very few megaloblasts. Subsequent study and observation of the case cast some doubt on the accuracy of the diagnosis of pernicious anemia. These three cases with inactive marrows would seem to belong to the class of case termed by Minot and Lee the myelotoxic type. The authors do not advocate bone marrow puncture in pernicious and other anemias as a method to supplant blood studies, but merely as an additional source of information in selected cases. Another field of some promise for the application of marrow puncture is that of the polycythemias.

Basal Metabolism in Thyroid Cases.—Means and Burgess assert that patients with an outspoken clinical picture of hyperthyroidism invariably show increased metabolism and those with definite clinical pictures of hypothyroidism invariably show decreased metabolism. Those with goiters, but no signs or symptoms of abnormal thyroid function, for the most part show normal or abnormal metabolism. The majority show normal metabolism. By interference from the indirect evidence the authors believe that in these borderline thyroid cases, provided that in the first place a true basal rate is secured, and, provided that certain well recognized causes for increased metabolism, such as fever, acromegaly, leukemia and severe anemia are excluded, the finding of an increased basal metabolic rate is strong presumptive evidence of hyperthyroidism. In a similar way, provided that such conditions are starvation, hypopituitarism, and hyposuprarenalism are excluded, a low metabolic rate is strong presumptive evidence of hypothyroidism. To that extent, then, the metabolism test is distinctly useful in differential diagnosis. Like all other laboratory tests it should only be interpreted with due regard to all other clinical and laboratory findings, and with due regard for its limitations and pitfalls.

Arkansas Medical Society Journal, Little Rock

October, 1922, **19**, No. 5

Diagnosis of Neurosyphilis. G. M. Eckel, Hot Springs.—p. 81.
Duodenal Tube in Diagnosis and Treatment of Disease of Biliary Passages. L. Thompson, Hot Springs.—p. 89.

Endocrinology, Los Angeles

September, 1922, **6**, No. 5

Principles Underlying Organotherapy and Hormonotherapy. L. F. Barker, Baltimore.—p. 591.
*Chinese Cretin Treated with Native Medicine. W. G. Lennox, Peking, China.—p. 596.
Appraisal of Ovarian Therapy. E. Novak, Baltimore.—p. 599.
Some Recent Work on Internal Secretions. R. G. Hoskins, Columbus. —p. 621.
Concerning Pathogenesis of Thyrotoxicosis. Part I. N. W. Janney, Los Angeles.—p. 633.
Experiences in Testicle Transplantation. H. L. Hunt, New York.—p. 652.

Chinese Cretin.—Cretinism among the Chinese apparently is not common. Annual reports from fourteen hospitals in China, giving diagnoses of 33,000 inpatients, do not record a case of this disease. Lennox records the case of a Chinese cretin, aged 17, who also had a parathyroid deficiency. An old style Chinese practitioner had prescribed a mixture of powdered turtle shell, tiger bones and deer horn.

Indiana State Medical Association Journal, Ft. Wayne

October, 1922, **15**, No. 10

Status of Indiana Medical Profession. W. R. Davidson, Evansville.—p. 337.
Treatment of Carcinoma of Uterine Cervix. S. A. Clark, South Bend. —p. 339.
Disturbances of Carbohydrate Metabolism. J. H. Warvel, Indianapolis. —p. 343.
Constructive Thinking in Our Medical Organizations. A. W. Childs, Madison, Ind.—p. 350.

Johns Hopkins Hospital Bulletin, Baltimore

October, 1922, **33**, No. 380

Excitatory State. W. M. Bayliss.—p. 347.
Study of Frozen Sections Through Cadaver Showing Anatomic Relations of a Large Uterine Myoma. J. W. Williams.—p. 350.
Changes in Para-Ocular Glands Which Follow Administration of Diets Low in Fat Soluble A; Effect of Same Diets on Salivary Glands and Mucosa of Larynx and Trachea. S. Mori.—p. 357.
Modification of Chromaffin Reaction, Occurrence of Abdominal Chromaffin Bodies in Mammals. G. B. Wislocki, Baltimore.—p. 359.
*Cardiac Complications of Gonorrhea. W. S. Thayer, Baltimore.—p. 361.

Posteencephalitic Behavior Disorders in Children. L. B. Hohman, Baltimore.—p. 372.
Tolerance and Acquired Tolerance of Mesenchyme Cells in Tissue Cultures for Copper Sulphate and Sodium Arsenite. J. L. Wilson, Baltimore.—p. 375.
Abdominal Chromaffin Body in Dogs. G. B. Wislocki and S. J. Crowe, Baltimore.—p. 377.

Cardiac Complications of Gonorrhea.—Pericarditis and endocarditis of purely gonorrheal origin was noted first in the early sixties. In 1899, Thayer collected thirty-two instances of well described ulcerative and vegetative endocarditis associated with gonococcal infection, with postmortem records, and fifteen in which the purely gonococcal nature of the infection might fairly be accepted. Now he reports three cases seen in the course of the last two years. Cultures from the circulating blood were negative but gonococci were demonstrated in the valvular thrombi at necropsy and in one case from the kidney. In 176 instances of acute endocarditis of determined origin seen in the Johns Hopkins Hospital, twenty, or 11.3 per cent., were gonococcal. Gonococci were cultivated intra vitam or postmortem in fourteen instances; they were demonstrated bacterioscopically following negative cultures intra vitam or postmortem in six instances. But little evidence could be obtained as to the relation of the time of onset of the cardiac involvement to the appearance of the disease or other complications. Arthritis occurred in only 41.1 per cent. of the cases, but in 68.5 per cent. of fifty-four cases collected from other sources. The cardiac involvement is not restricted to the endocardium. Endocarditis, pericarditis and suppurative myocarditis are not unusual. Gonorrheal endocarditis is in general, a malignant process pursuing a progressive and fatal course.

Journal of Bone and Joint Surgery, Boston

October, 1922, **4**, No. 4

Hemorrhagic Osteomyelitis. G. Barrie, New York.—p. 653.
Studies on Experimental Rickets. P. G. Shipley, Baltimore.—p. 672.
*Pathology of Tuberculosis of Joints. A Study from Clinical Standpoint. M. H. Rogers, Boston.—p. 679.
Cervical Rib. Report of Six Cases. S. W. Boorstein, New York.—p. 687.
*Pain Due to Iliocostal Impingement. F. J. Gaenslen, Milwaukee.—p. 705.
*Beef Bone in Stabilizing Operations of Spine. L. T. Brown, Boston.—p. 711.
Pathology of Osteitis Deformans, Paget's Disease. S. M. Cone, Baltimore.—p. 751.
*Mechanics of New Plaster Shell in Treatment of Pott's Disease in Children, with Lateral Roentgen-Ray Control. R. P. Schwartz, Perrysburg, N. Y.—p. 789.
Davis' Method of Reduction of Congenital Dislocation of Hip Joint. W. J. Merrill, Philadelphia.—p. 805.
Report of Committee for Investigation of Best Method of Treatment for Congenital Dislocation of Hip. J. E. Goldthwait and Z. B. Adams, Boston, and D. F. P. Willard, Philadelphia.—p. 821.

Pathology of Joint Tuberculosis.—Clinical evidence is presented by Rogers that tuberculosis of joints has its origin in the capsule of the joint and that the involvement of bone is usually a secondary process. A case of early tuberculosis of the hip in a young adult seems to point strongly to the invasion of the capsule as the beginning of the process. The hip joint was explored by an anterior incision. The capsule was found thickened and reddish in color. Most of the head and neck was inspected and no evidence of any bone involvement found. A piece of capsule was excised for pathologic study and showed tuberculosis. Two weeks later an arthrodesis was done, at which time the head was turned out and the cartilage removed and the acetabulum explored. No evidence of bone tuberculosis could be found in the bone.

Pain Due to Iliocostal Impingement.—Impingement of the costal margin on the crest of the ilium as a cause of persistent pain was noted by Gaenslen in five cases. The pain was located definitely at the lowermost portion of the costal margin where this lies closest to the crest of the ilium. Not only was there pain at this point, but also local tenderness, and this pain and tenderness could be produced at will by pressure on the costal margin at the point indicated. In examining for this condition, Gaenslen says, it is best to have the patient sitting as erect as possible, then to crowd the examining fingers under the costal margin, and finally to allow the patient to assume a relaxed position, if necessary, with the trunk inclined slightly forward and to the affected side. If impingement is the important factor, the pain which the patient complains of can be produced at will by this maneuver. While some discomfort is elicited on the sound side as well, it is not so acute or definite as on the affected side.

Beef Bone in Stabilizing Spine.—Observation of cases and two experiments on dogs make Brown feel that immobilization of the spine is better accomplished by fusion of the laminae and articular facets than by immobilization of the spinous processes by means of a beef bone splint, with or without the fusion of the laminae and articular facets on one side of the spinous processes.

New Plaster Shell in Treatment of Pott's Disease.—Schwartz describes the apparatus in use in the Children's Hospital, Boston. It consists of a posterior plaster-of-Paris shell. The posterior shell differs from the original plaster bed in that it is cut transversely at the level of the apex of the kyphos and joined together by hinges on each side, while a long turnbuckle connects the head of the shell to a heavy plaster pedestal beneath the buttock. By shortening the turnbuckle the convexity of the shell is increased and hypertension of the spine is secured. A new shell has been devised by Schwartz consisting of a posterior shell and an anterior lid. It is decidedly less expensive, much more simple in construction, and up to the present time has proved to be mechanically efficient, although its true value is still to be determined.

Journal of Experimental Medicine, New York

October, 1922, **36**, No. 4

*Pure Cultures of Large Mononuclear Leukocytes. A. Carrel and A. H. Ebeling, New York.—p. 365.
*Pure Strain of Cartilage Cells in Vitro. A. Fischer, New York.—p. 379.
Growth Promoting Function of Leukocytes. A. Carrel, New York.—p. 385.
*Cultures of Organized Tissues. A. Fischer, New York.—p. 393.
Action of Shaken Serum on Homologous Fibroblasts. A. Carrell and A. H. Ebeling, New York.—p. 399.
*Hydrogen Ion Concentration of Joint Exudates in Rheumatic Fever and Other Forms of Arthritis. R. H. Boots and G. E. Cullen, New York.—p. 405.
Alimentary Leukocytosis in Its Relation to "Crisé Hemoclasique" of Widal. W. S. Van Leeuwen, Z. Bien and H. Varekamp, Leiden, Holland.—p. 415.
Experimental Rickets in Rats. VII. Prevention of Rickets by Sunlight, by Rays of Mercury Vapor Lamp, and by Carbon Arc Lamp. A. F. Hess, L. J. Unger and A. M. Pappenheimer, New York.—p. 427.
Experimental Rickets in Rats. VIII. Effect of Roentgen Rays. A. F. Hess, L. J. Unger and J. M. Steiner, New York.—p. 447.
Cow Serum as Substitute for Colostrum in New-Born Calves. T. Smith and R. B. Little, Princeton, N. J.—p. 453.
*Iodin Content of Blood Following Thyroidectomy. W. A. Hudson, St. Louis.—p. 469.

Pure Cultures of Leukocytes.—Pure strains of mononuclear leukocytes were isolated by Carrel and Ebeling from the blood of adult chickens and kept in active condition for nearly three months. The cultures were composed of large mononuclear leukocytes which migrated and proliferated in vitro at a slower rate than fibroblasts. The cells had no tendency to form a tissue, as do fibroblasts and epithelial cells. They were much less resistant than fibroblasts. Differentiation of the large mononuclears into cells assuming the appearance of fibroblasts took place under certain conditions. The activity of the large mononuclears was increased by embryonic tissue juice and inhibited by homologous serum.

Pure Strain of Cartilage Cells.—A strain of cartilage cells, obtained from the pars cartilago sclerae of the eye of chick embryos, has been cultivated by Fischer for more than three months in vitro. The hyalin substance disappeared during cultivation in vitro. The succeeding stages of a transformation from small, lymphocyte-like cells into large, spindle shaped cells were observed. The cartilage cells were spindle shaped and grew in close contact, forming thin membranes. In surface grown cartilage cells, the nucleus, usually containing one large nucleolus, stained less deeply than the cytoplasm.

Cultures of Intestine.—Fragments of small intestine from a twenty-one day old chick embryo, cultivated by Fischer in plasma and tissue juice, became completely surrounded with cylindrical epithelium. After a month's cultivation in plasma and tissue juice, the tissues composing the mass were normal. It would seem that the necessary food material was absorbed by the epithelium from the culture medium. When

these masses were cultivated in embryo juice without plasma, the intestinal villi remained normal, while the stroma, connective tissue cells, and their fibrillae progressively disappeared, leaving an epithelial cyst.

Hydrogen Ion Concentration of Rheumatic Joint Exudates.—The hydrogen ion concentration of joint exudates aspirated from patients ill with acute rheumatic fever, arthritis of undetermined origin, and bacterial arthritis was determined by Boots and Cullen. The hydrogen ion concentrations of the joint exudates from patients with acute rheumatic fever approximated the normal reaction of blood, varying from *p*H 7.27 to 7.42. Exudates from patients with arthritis of undetermined origin varied in *p*H from 7.33 to 7.47. The *p*H of a joint effusion occurring in a patient with myocardial insufficiency was 7.34. Bacteriologically, all of these fluids were sterile by ordinary means of cultivation. An exudate aspirated from a knee infected with *Staphylococcus aureus* had a *p*H of 6.69, while that from a patient having an arthritis due to *Streptococcus hemolyticus* was also acid, having a *p*H of 6.19. Since a definitely acid medium is necessary for the liberation of free salicylic acid and since all of the joint fluids from patients with acute rheumatic fever were slightly alkaline, the authors assert that no free salicylic acid could possibly exist in such joint fluids following the administration of salicylates.

Iodin Content of Blood After Thyroidectomy.—Hudson found that after thyroidectomy in dogs the iodin content of the blood is increased. The administration of fresh thyroid gland of sheep by mouth to thyroidectomized dogs causes the iodin content of the blood to fall so that it returns to the normal preoperative level; when the thyroid feeding is discontinued the iodin content of the blood is again increased.

Journal of Infectious Diseases, Chicago

October, 1922, **31**, No. 4

*Effect of Injection of Active Deposit of Radium Emanation on Rabbits; with Special Reference to Leukocytes and Antibody Formation. L. Hektoen and H. J. Corper, Chicago and Denver.—p. 305.

Antigenic Relations of Bipolaris Septicus Group of Bacteria. L. M. Roderick.—p. 313.

Acid Production of Bacillus Welchii. I. C. Hall and S. B. Randall, Berkeley, Calif.—p. 326.

New Micromanipulator and Methods for Isolation of Single Bacterium and Manipulation of Living Cells. R. Chambers, New York.—p. 334.

Chambers' Micromanipulator for Isolation of Single Bacterium. M. C. Kahn, New York.—p. 344.

Relation Between Fixed and Free Salts of Bacteria. M. Guillemin and W. P. Larson, Minneapolis.—p. 349.

Action of Visible Spectrum on Complement. E. E. Ecker, Cleveland.—p. 356.

*Effect of Hemorrhage on Complement of Blood. E. E. Ecker and H. M. Rees, Cleveland.—p. 361.

Relation of Reduction of Leukocytes and Platelets to Complementing Power of Serum. E. E. Ecker; B. S. Kline and A. DeCaluwe, Cleveland.—p. 368.

Group Specificness of Antibodies in Antistreptococcus Serum. R. Tunnicliff, Chicago.—p. 373.

*Experimental Measles by Inoculation of Monkeys, Guinea-Pigs and Rabbits with Green Producing Diplococcus. R. Tunnicliff and W. B. Moody, Chicago.—p. 382.

Effect of Injection of Active Deposit of Radium Emanation.—Hektoen and Corper assert that active deposit of radium is lethal to rabbits when given intravenously in amounts of approximately from 8 to 10 millicuries per kilogram weight. In lethal amounts given intravenously the active deposit produces an initial leukocytosis with finally a marked diminution in the circulating leukocytes, mainly of the polymorphonuclears. This is associated with changes in the liver, lungs, lymph glands, spleen, suprarenals and kidneys frequently accompanied by capillary hemorrhages. These results are similar to those obtained with active deposit in white rats and dogs by Bagg. Given intravenously, active deposit in nonlethal amounts may have a depressing effect on the formation of lysin and to a less extent on precipitin for sheep blood.

Effect of Hemorrhage on Blood Complement.—Complement which has a regular curve of decrease and regeneration following a single severe hemorrhage, Ecker and Rees found, is unaffected by subsequent dilution of the blood by the body fluids. The curve does not run parallel to that of any of the cellular elements circulating in the blood following hemorrhage, nor is there reason to believe that any of these cells is a factor in the regeneration of complement. The initial decrease is due to dilution of the blood, which decrease is soon overcome and restored to normal by an influx of complement from some, as yet unknown, source. Repeated hemorrhages with extreme degrees of anemia and subsequent recovery do not alter the level of complement.

Experimental Measles in Animals by Inoculation.—The experimental work done by Tunnicliff and Moody showed that monkeys, guinea-pigs and rabbits are susceptible to measles when inoculated with the washings of the nose and throat of patients with measles. The same symptoms and lesions may be produced in these animals by the green producing diplococci isolated from the blood and respiratory passages of human measles. Rabbits successfully inoculated with washings or the diplococcus show no symptoms when reinoculated with fresh virus. Green producing diplococci from the blood and lung of rabbits, successfully inoculated with diplococci from measles, produce Koplik spots and exanthems when injected into other rabbits. Filtrates of the diplococcus cultures generally show abundant growth, but old cultures containing large forms sometimes multiply only after several days' incubation or on subculture into a favorable medium. While the experiments indicate that the reaction is due to the coccus itself and not to a separate virus carried by it, on account of the same symptoms being produced by cultures as late as the seventh generation and the absence of the reaction in rabbits injected with other bacteria, isolated from the same plate as the green producing diplococci, it is possible that the diplococcus possesses the selective power of carrying the specific virus of measles.

Journal of Metabolic Research, Morristown, N. J.

June, 1922, **1**, No. 6

Metabolism Studies in Tetany. F. P. Underhill, W. Tileston and J. Bogert, New Haven, Conn.—p. 723.

*Studies on Vitamins B and D. C. Funk and J. B. Paton, New York.—p. 737.

*Influence of Glands with Internal Secretions on Respiratory Exchange. V. Effect of Suprarenal Insufficiency (by Removal) in Thyroidectomized Rabbits. D. Marine and E. J. Baumann, New York.—p. 777.

Advanced Chronic Nutritional Disturbances in Infancy. K. Utheim, St. Louis.—p. 803.

Studies on Vitamins B and D.—A short procedure is described by Funk and Paton for testing vitamin B on pigeons, and further evidence is presented on the vitamin-sparing action of certain proteins known to be free from vitamin B. Increased carbohydrate feeding did not give a clear result as regards an increased vitamin requirement. Increasing the amount of vitamin B did not increase the intake of a well balanced diet. There is slight evidence that with diminished food intake beriberi symptoms are delayed on a diet free from vitamin B. Alkali very markedly destroys vitamin B but has less action in vitamin D. Autoclaving for three hours at 25 pounds pressure destroys vitamin B, but has less action on vitamin D. Experiments on the effect of alkali and autoclaving were made, for the first time, on pigeons which were already in vitamin B equilibrium. Contrary to existing opinions, growth of yeast or some other fungus takes D vitamin out of solutions but leaves B vitamin behind, as proved by experiments on pigeons and rats. The yeast cells retain the vitamin D very tenaciously after they have taken it out of solution.

Effect of Suprarenal Insufficiency on Thyroidectomized Rabbits.—Nine aditional experiments on rabbits made by Marine and Baumann again show that thyroidectomy prevents or greatly diminishes the rise in the respiratory exchange which usually follows severe bilateral but sublethal injury to the suprarenal glands with intact thyroids. It is apparent that a thyroid-suprarenal cortex interrelationship exists, which is separate from the thyroid chromophil tissue interrelationship. The nature of this relationship is unknown but the evidence suggests that the suprarenal cortex, as one of its functions, exercises an inhibitory or regulatory control over thyroid activity and when this is sufficiently crippled, as by vessel ligation, freezing, or partial removal, the thyroid automatically responds with increased functional activity, resulting in increased heat production if a sufficient amount of the iodin containing hormone is liberated. There is evi-

V. 192

dence that single doses of iodin (25 mg. potassium iodid), administered by mouth, increase the heat production in suprarenalectomized rabbits with incomplete thyroidectomies. There is also evidence that sufficient but sublethal suprarenal insufficiency in rabbits and in cats causes a rapid loss of iodin from the thyroid. These observations throw light on the thyroid-sex gland interrelationship known since antiquity and probably have an important bearing both on the etiology of simple goiter and of exophthalmic goiter.

Minnesota Medicine, St. Paul

October, 1922, **5**, No. 10

Early Diagnosis of Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 571.
Acute Appendicitis. R. Earl, St. Paul.—p. 574.
Conditions Simulating Acute Leukemia. J. G. Cross, Minneapolis.—p. 579.
Experimental Results of Cable Grafts and Tubes of Fascia Lata in Repair of Peripheral Nerve Defects. W. O. Ott, Rochester.—p. 581.
Treatment of Cancer of Breast. F. H. Kuegle, Sioux City, Ia.—p. 588.
Thyroid in Infancy. T. L. Birnberg, St. Paul.—p. 591.
Early Symptoms of Acute Poliomyelitis. W. H. Valentine, Tracy.—p. 594.
Abortions and Curettments. W. G. Strobel, Duluth.—p. 596.
Factors in Longevity. J. E. Crewe, Rochester.—p. 600.
Central Bone Tumors and Their Differential Diagnosis: Latent and Unhealed Bone Cysts in Adults. J. C. Bloodgood, Baltimore.—p. 604.

Missouri State Medical Association Journal, St. Louis

October, 1922, **19**, No. 10

*Permanent Cure for Trigeminal Neuralgia. W. T. Coughlin, St. Louis.—p. 419.
Renal Factor in Diabetes Mellitus. L. H. Fuson, St. Joseph.—p. 423.
Carcinoma of Breast, Its Diagnosis and Treatment. C. F. Sherwin, St. Louis.—p. 425.

Permanent Cure for Trigeminal Neuralgia.—Coughlin operates under local anesthesia. The incision is linear, extending from the zygoma about a thumb's breadth in front of the ear backward and upward to the parietal eminence. This line is infiltrated with 0.5 per cent. procain, all of the tissues are flooded, including the periosteum, then on either side of the lower end of this line the tissues are similarly flooded; the incision exposes the fibers of the temporal muscle, the temporal fascia is divided at its attachment to the zygoma, both layers, so that it can be drawn forward and backward with ease. The muscle is split and retracted to expose the underlying bone. The periosteum is scraped back, the bone drilled about an inch above the base line, the opening is enlarged with rongeur, the dura is pushed upward, exposing the floor of the middle fossa. The middle meningeal artery is tied and cut and almost at once the third division is seen entering the foramen ovale; the dura covering it is incised and the root is traced upward and backward exposing the ganglion. The dura is elevated from the ganglion, continuing backward and upward and soon the root is seen entering the ganglion just above the apex of the petrous portion of the temporal bone where it can be easily cut or evulsed. The wound is closed, usually with a small drain. This drain is removed at the end of twenty-four hours. Generally, for the first few hours there is considerable discharge of cerebrospinal fluid. The result is the permanent cure of the disease. Since writing this description Coughlin has been saving the motor root and is surprised to note that no facial nerve palsy has appeared in any case in which the motor root has been preserved.

Philippine Islands Medical Association Journal, Manila

July-August, 1922, **2**, No. 4

Iridectomy in Treatment of Glaucoma. H. Velarde.—p. 167.
*Papillary Carcinoma in an Infant. M. P. Mendoza-Guazon.—p. 169.
Study of Filipino Diet. I. M. L. Roxas and E. G. Collado.—p. 171.

General Carcinosis in an Infant.—The clinical diagnosis in the case reported by Mendoza-Guazon was cerebrospinal meningitis. The child was 5 years of age. The necropsy showed an enlarged abdomen rigid with greenish discoloration. Small masses were felt inside of it. The intestines and the omentum formed a large mass which was attached to the organs of the pelvic cavity. In this mass were found round and oval, soft, deeply congested masses which were very friable, light gray in color, and covered with a thin vascular capsule. Myriads of these nodules, varying in size and shape, were found disseminated all over the serosa of the peritoneum, intestines, spleen, hilum of liver, colon, rectum, bladder, uterus, the right ovary and tube (the left ovary and tube were missing) and in the left broad ligament. None was found in the stomach or duodenum. Even the lungs, mediastinal lymph nodes, the brain and the dura mater contained these masses. Histologic sections showed papillary carcinoma which seemed to have come from the ovary. The vascularity and great power of metastasis of the tumor as well as the youth of the patient make this case interesting.

Southern Medical Journal, Birmingham, Ala.

October, 1922, **15**, No. 10

Influence of Posture on Physical Signs in Chest. J. B. Guthrie, New Orleans.—p. 771.
Murmur of Mitral Stenosis in Presence of Auricular Fibrillation. N. B. Stern, Memphis, Tenn.—p. 774.
Fat Intolerance. P. F. Barbour, Louisville, Ky.—p. 777.
Evaluation of Mental Tests. J. M. Fletcher, New Orleans.—p. 783.
Case of Hysteria. E. B. Block, Atlanta, Ga.—p. 788.
Progressive Lenticular Degeneration. M. L. Graves, Galveston, Tex.—p. 792.
Hydrochloric Acid in Gastro-intestinal Pathology. J. C. Johnson, Atlanta, Ga.—p. 799.
Clinical Significance of Abdominal Adhesions. J. Friedenwald and T. H. Morrison, Baltimore.—p. 804.
*Malignant Adenoma of Colon and Rectum. J. L. Jelks, Memphis, Tenn.—p. 816.
Intra-Abdominal Gumma. A. L. Levin, New Orleans.—p. 817.
Methods of Getting People to Build Privies. A. T. McCormack, Louisville, Ky.—p. 818.
Bone Atrophy. B. Brooks, St. Louis.—p. 823.
Fractures of Skull. E. Sachs, St. Louis.—p. 825.
Treatment of Puerperal Fever. J. T. Altman, Nashville, Tenn.—p. 829.
Treatment of Fractures Near Shoulder, Elbow and Wrist. W. W. Harper, Selma, Ala.—p. 832.
Infections of Urinary Tract; Report of 400 Cases. E. C. Mitchell, Memphis, Tenn.—p. 836.
Case of Papilloma of Pelvis of Kidney. O. S. McCown, Memphis, Tenn.—p. 841.
*Case of Cornu Cutaneum. F. R. Crawford, Kashing, China.—p. 843.
Special License for Practice of Surgery. J. Darrington, Yazoo City, Miss.—p. 844.
Paranasal Sinus Disease in Infants and Young Children. L. W. Dean, Iowa City, Ia.—p. 846.
Infection of Nasal Accessory Sinuses with Serious Meningeal Complications. J. W. Murphy, Cincinnati.—p. 851.
Control of Earache Through Nasal (Sphenopalatine or Meckel's) Ganglion. G. Sluder, St. Louis.—p. 856.
Control of Mandibular Pain Through Nasal (Sphenopalatine or Meckel's) Ganglion. G. Sluder, St. Louis.—p. 856.
Control of Glossodynia Through Nasal (Sphenopalatine or Meckel's) Ganglion. L. W. Dean, Iowa City, Ia.—p. 856.

Malignant Adenoma of Rectum.—In the case reported by Jelks numerous adenomas were filling the rectum and sigmoid. More than 100 tumors varying from the size of a pea to that of a pecan were removed. The laboratory reported them as being nonmalignant. Roentgen-ray examination of the chest showed that the mediastinum as well as both lungs were filled with metastatic processes. The man died of acute lobar pneumonia. Necropsy was refused.

Cornu Cutaneum.—Crawford's patient had had a tumor on the left side of his face for twenty years. This had grown slowly. About one year previous to admission to the hospital, the skin over the center of the tumor became inflamed and broke, with the discharge of a small amount of thin seropurulent material. This lasted only a few days and was followed by the gradual growth of the tumor. The central portion of the left cheek was occupied by a large tumor mass. Springing from the center of the tumor and with its diameter nearly equal to that of the tumor was a large horn. The tumor was slightly irregular in outline, nodular, but soft. The skin over the tumor just at the base of the horn was somewhat inflamed, and there was a slight sense of fluctuation. The skin was not infiltrated. Just at the base of the horn the mass measured 8¾ inches in circumference. Measuring over the convex surface, from the cheek at the base of the tumor to the tip of the horn, was 6¼ inches. The horn was curved downward, suggesting the action of gravity. The horn was hard, resounding on being tapped with a pencil. It was brown in color and presented a roughened, striated appearance. At the operation the skin fell away from the tumor practically without dissection. Following the line of cleavage the tumor was lifted out very easily.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Oct. 7, 1922, **2**, No. 3223

*Treatment of Neurosyphilis. J. Purves-Stewart.—p. 621.
*Treatment of Neurosyphilis, with Special Reference to Changes in Cerebrospinal Fluid. D. K. Adams.—p. 631.
Wassermann Reaction in Diagnosis and Control of Treatment of Neurosyphilis. E. M. Dunlop.—p. 632.
Element of Contrast in Psychic Mechanism. J. H. Macdonald.—p. 635.
Surgical Treatment of Gastrojejunal and Jejunal Ulceration. G. Wright.—p. 640.
Prostatectomy in Case of Diabetes Insipidus. J. F. Alexander and F. S. Kidd.—p. 642.
*Paralysis of Facial Nerve with Herpes Zoster. C. T. Neve.—p. 643.
*Dystocia Due to Gigantic Fetus. E. L. Moss.—p. 643.

Treatment of Neurosyphilis.—Stewart's experience corroborate the conclusions reached by Schaller and Mehrtens (1) that the most promising cases of neurosyphilis for intraspinal therapy are those of the meningovascular type, (2) that of the parenchymatous group, tabetic cases are relatively the most favorable, whereas paralytic dementia and optic tabes are generally unfavorable. Cases of taboparalysis do badly in contrast with pure tabetics. Stewart urges that in every case of neurosyphilis, antisyphilitic remedies should be administered by the most efficient route, whether by mouth, inunction, fumigation, intramuscular or intravenous injection. In no case should remedies be directed exclusively to the nervous system. Advanced cases of general paralysis with extensive destruction of cortical nerve elements, are hopeless for curative treatment by any method whatever.

Treatment of Neurosyphilis.—The routine adopted in the series of cases of neurosyphilis reported by Adams has been a preliminary course of mercury and iodid for an average of two weeks, followed by a series of from twenty to forty injections of from 0.45 to 0.6 gm. of the novarsenobenzol brand of arsphenamin given at seven day intervals. After every fourth injection two weeks rest was given. Prior to each injection there was no elaborate preparation with starvation, the only departure from the ordinary routine being a saline aperient and slight curtailment of breakfast on the morning of the injection. Cases of tabes dorsalis, taboparesis, general paralysis of the insane, Erb's syphilitic spinal sclerosis, motor neurone disease, and meningovascular syphilis were among those treated.

Herpes Zoster of Geniculate Ganglion Causes Facial Paralysis.—It is Neve's object to show that herpes zoster affecting the geniculate ganglion is a much more frequent cause of facial paralysis than is commonly supposed, and that many, if not all the cases in which exposure to cold is blamed are due in reality to that micro-organism, at present unknown, which, attacking the posterior root ganglia of the spinal nerves, and the homologous ganglia of the cranial nerves, produces the interesting train of symptoms called herpes zoster.

Case of Gigantic Fetus.—In the case cited by Moss, the fetus weighed 24 pounds 2 ounces, and measured 35 inches in length. The child was stillborn. The mother and father were both six feet tall.

Irish Journal of Medical Science, Dublin

September, 1922, **5**, No. 7

Principles of Colloid Therapeutics. W. G. Smith.—p. 293.
Some Aspects of Sterility. B. Solomons.—p. 303.
Method of Treating Superficial Lesions of Perineum and Intrapelvic Conditions from Below. M. R. J. Hayes.—p. 314.
*Descent of Spermatic Cord with Imperfect Descent of Testicle. A. K. Henry.—p. 317.
*Case of Tuberculosis of Uterus. B. Solomons and J. H. Pollock.—p. 321.

Descent of Spermatic Cord with Imperfect Descent of Testicle.—Henry has seen four patients in whom the body of the testis had failed to descend beyond the inguinal canal, while a structure giving the characteristic whipcord sensation of the vas deferens could be rolled between finger and thumb within the scrotum. He believes that this condition is not uncommon and that it is often wrongly diagnosed inguinal hernia.

Tuberculosis of Uterus.—Solomons and Pollock record the case of a woman, aged 49, who enjoyed good health until nine years ago when her menstrual periods commenced to become heavy. From that time until the date of operation they varied from two or three days to eight or nine days. She complained of bilateral pain for the past year which had been increasing in severity. During the weeks previous to admission to the hospital there had been continued hemorrhage. She had noticed a loss of flesh. There was nothing significant in the family history. Bimanual examination revealed an enlarged uterus, and the diagnosis was made of myoma undergoing degeneration. The operation consisted of hysterectomy with removal of both tubes and ovaries. On hemisection, the uterus was found to be increased in size, but the cavity to be diminished. At first sight the appearance suggested an interstitial fibromyoma, with small areas of necrosis. The necrotic areas, however, contained an unusually fluid material, which left small suggestive cavities on evacuation. Smears were made from this fluid and stained for tubercle bacilli; two were found after prolonged examination. Paraffin sections from the solid area showed giant cell formation, epithelial cell proliferation and lymphocytic immigration. The entire cut surface of the uterus shows a marbled appearance due to areas of necrosis alternating with non-necrotic portions.

Lancet, London

Oct. 7, 1922, **2**, No. 5171

Scope and Technic of Myomectomy. V. Bonney.—p. 745.
Radiology: Use and Abuse. R. A. Morrell.—p. 748.
Action of Vaccines. J. Pratt-Johnson.—p. 751.
Improvements in Methods of Blood Counting. A. C. Alport.—p. 756.
*Effect of Position in Family on Health of Child. R. H. Vercoe.—p. 758.
*Study in Diagnosis of Cancer by Means of Serum Reactions. J. A. Shaw-Mackenzie.—p. 759.
*Detection of Malignant Cells in Body Fluids. P. N. Panton.—p. 762.
*Case of Combined Littré's and Richter's Hernia. N. F. Sinclair.—p. 762.
Direct and Indirect Inguinal Hernia on Same Side. H. E. S. Stiven.—p. 763.

Effect of Position in Family on Health of Child.—A comparison was made by Vercoe between the first, second, third, etc., child in the family as regards relative intelligence, physique and resistance. There is no appreciable difference between any of the children investigated; whereas in incidence of disease, both past and present, the worst child is definitely the eldest, while the best is definitely the eighth child and upward. Therefore, as far as this series has been carried, the conclusions are: (1) That the quality of the average child does not deteriorate in any way with successive pregnancies; (2) that the quality of the family does not deteriorate in any way with increase of quantity in the environment and class herein considered; inasmuch as the eighth children, who are drawn entirely from large families, are inferior to none and superior to the eldest who are drawn largely from small families.

Diagnosis of Cancer by Serum Reactions.—Attention is directed by Shaw-Mackenzie to a new test of cancer by means of a turbidity reaction in the serum. The test consists in adding an ether extract of cancer tissue, with or without saponification, to cancer serum. This is followed by an appearance of turbidity after incubation which does not appear at all, or not to the same extent, with noncancerous serum. It is essential that the serum used should be as clear as possible; if turbid to start with the test becomes difficult, for then one has to judge relative turbidities. This difficulty is especially marked in diabetic cases. Shaw-Mackenzie has tested in this way 180 serums, including fifty-eight normal serums. In forty-one cases a previous positive or negative diagnosis has been confirmed by the test. In thirty-five cases in which no details of the cases had been given or the diagnosis was uncertain, a correct diagnosis was made as determined subsequently. In two further cases positive results were not confirmed in noncancer patients; one was a case of chronic nephritis; the other was a case of neurosis.

Sarcoma Cells in Cerebrospinal Fluid.—Panton relates a case in which the cerebrospinal fluid contained many sarcoma cells. The patient, from whom the fluid was obtained, was a man, aged 55, a syphilitic, with a perforated palate, who had had his left eye removed for sarcoma twelve months

before. The patient on admission to the hospital had the physical signs and symptoms associated with multiple lesions of the roots and spinal cord. The Wassermann reactions of the blood and spinal fluids were then negative. The condition was evidently one of diffuse sarcomatosis of the cord involving the thoracic, lumbar and sacral regions, and in diffuse soft growths of this nature it is conceivable that numerous cells may become free in the spinal fluid; moreover, it is probable that the needle traversed a portion of the growth in making the puncture.

Combined Littré's and Richter's Hernia.—In Sinclair's case these two rare forms of hernia coexisted in a single femoral sac.

Oct. 14, 1922, **2**, No. 5172

*Mental Hygiene in Relation to Insanity and Its Treatment. F. W. Mott.—p. 793.
Chronic Endocervicitis and Its Treatment. J. W. Burns.—p. 796.
*Outbreak of Trichiniasis. D. A. Rice and H. O. Williams.—p. 799.
Normal Infant's Chest. J. H. P. Paton and A. Rowand.—p. 801.
*Radium as Curative Agent for Tuberculous Glands. E. S. Molyneux. —p. 804.
*Pfeiffer's Bacillus and Influenza. S. W. Patterson and F. E. Williams. —p. 806.
Cysts of Epididymis. R. O. Ward.—p. 807.
Smallpox and "Amaas" in South Africa. J. A. Mitchell.—p. 808.
*Two Cases of Gallstone Ileus. F. C. Pybus.—p. 812.
*Differential Diagnosis of Acute Appendicitis and Acute Right Salpingitis. M. Marcus.—p. 813.
Two Cases of Epileptiform Convulsions During Anesthesia. H. H. L. Patch.—p. 813.

Mental Hygiene in Relation to Insanity.—Mott urges reforms in provision of separate hospitals for the treatment of acute curable cases and that by spending the appropriations more wisely on the principle that the first duty of the authorities is to prevent disease; failing that, to cure disease, and failing that, to prolong life and relieve suffering, these hospitals will not be a public burden. This can be done as follows: (1) By endeavoring to prevent disease—that is, by mental hygiene on the lines adopted by the National Committee of Mental Hygiene of the United States of America. (2) By adequate provision of separate properly equipped buildings for the treatment on modern hospital and scientific lines of early curable and borderline cases, uncertified for a period of time, with legal provision against their improper detention, thus avoiding the stigma of asylum detention. (3) All incurable and chronic cases to be segregated, but classified in such a way that adequate and proper treatment can be afforded them. Other important items are: Expenditure on intensive scientifically conducted research in hospitals and laboratories into the causes, prevention and treatment of insanity by skilled, properly paid medical officers and social workers, is likely to be of more use and more economical in the end than expenditure on magnificent and costly buildings. There is great need of systematic teaching of psychologic medicine as part of the medical curriculum. Successful diagnosis is the first step to efficient treatment. A central research laboratory, properly manned and equipped, should be provided for a group of mental hospitals. Among the other measures of treatment that call for urgent reform is a more liberal diet. Occupation is of great value in treatment, but the occupation must be desired by the patient, and he must be interested in it; otherwise it will have no therapeutic value.

Trichiniasis.—The authors report thirteen cases of trichiniasis which followed the eating of sausages made from trichina infested pork. Trichinae were found in the patients' feces. The consistent and outstanding feature of the series was the high eosinophilic count [the large lymphocytes also tend to be increased], varying from 15.7 to 39.6 per cent.

Radium Therapy for Tuberculous Glands.—Molyneux extols the advantages of radium treatment of tuberculous lymph glands over other methods of treatment. It is quick in effect, is painless, leaves no scar and is permanent in results. In treating carcinoma a destructive dose of radium is given. In treating tuberculous glands a stimulating dose is given, which stimulates the tissues weakened by tuberculous infection to increased vitality, and enables the vitalized phagocytes to consume the tubercle bacilli, and—the active infection having been removed—to help absorption of the caseating material.

Pfeiffer's Bacillus and Influenza.—Bacteriologic examination of lungs made by Patterson and Williams at necropsies over a period of twelve months, during which three distinct prevalences of influenzal attack were noted, yielded information which they assert supports the view that the incidence fluctuations of *B. influenzae* as a lung parasite are independent of the particular pulmonary condition associated with it.

Gallstone Ileus.—Of the two patients whose cases are cited by Pybus, the first had a large stone removed from the ileum, relieving the obstruction. Four days later she again developed symptoms of intestinal obstruction, thought to be due to peritonitis, and no further operation was performed. Necropsy revealed two further stones impacted in the ileum. There was a fistula between the gallbladder and duodenum, but the former had completely discharged its contents, three stones in all. In the second patient a stone was removed from the lower end of the ileum; examination of the gallbladder showed that it was adherent to the duodenum, and still contained calculi. To prevent the possibility of a further obstruction the gallbladder and duodenum were separated. The fistula in the duodenum was closed and the stones removed from the gallbladder.

Differential Diagnosis of Appendicitis and Salpingitis.—Marcus emphasizes the point that in acute right salpingitis, pain is felt almost invariably, and from the first, on the right side, and the pain is usually referred down the right thigh, anteriorly, sometimes as far down as the knee. In acute appendicitis pain is usually felt first in the region of the umbilicus, and only later in the right iliac fossa.

Medical Journal of South Africa, Johannesburg

September, 1922, **18**, No. 2

Case of Megacolon (Hirschsprung's Disease); Colectomy. R. A. Ross. —p. 25.
*Operative Treatment of Chronic Intestinal Stasis. G. A. Casalis du Pury.—p. 27.
New Developments in Roentgen-Ray Deep Therapy. P. J. Olivier. —p. 33.
*Case of Hemopericardium Successfully Operated On. J. J. Levin. Johannesburg.—p. 37.

Operative Treatment of Chronic Intestinal Stasis.—C. du Pury is satisfied that when the cecum and ascending colon are dilated, prolapsed and unduly mobile, they can effectively be reduced in size and made to resume their physiologic function by the operation of cecorrhaphy, which consists in plating together or invaginating into longitudinal folds the bulbous, phlyctenular and overdistended organs, until they are no larger than the terminal portion of the ileum. Previous to the invagination, the whole colon from cecal head right up to and well beyond the hepatic bend should be freed of adhesions and the appendix removed. Cecorrhaphy, however, should be limited strictly to cases of typhlatony and when the symptoms of stasis are distinctly located to the right side; further, the adhesions blocking the hepatic bend should not be extensive or too firmly organized. Should they prove to be so and the liberation of the bowel appear a hazardous experiment, especially should it become apparent that some other obstruction exists lower down, then for the cecorrhaphy should be substituted a cecosigmoidostomy, in du Pury's opinion the best operation for drainage of the big bowel. Both operations are conservative—are devoid of undue risks to the patient's life and give permanent results.

Operation in Case of Hemopericardium.—Three days after a piece of steel struck the front of his chest, entering the precordial region, Levin's patient was admitted to the hospital, suffering from hemopericardium. On the following day Levin operated. He cut through the left fourth, fifth and sixth ribs at their junction with the sternum and about 2½ or 3 inches from this junction. Exposing the pericardial sac he made an incision about 2½ inches long. The heart then did some considerable splashing in blood. He immediately started a flow of physiologic solution of sodium chlorid into the pericardial sac; then he passed his hand into the pericardial sac and felt over the surface of the heart for the bit steel alleged to have caused the injury. It could not be found. The pericardial sac was emptied of blood clot and closed with continuous catgut sutures. The patient recovered.

Annales de Médecine, Paris

September, 1922, **12**, No. 3

*Respiration in Exophthalmic Goiter. P. Sainton and E. Schulmann.—p. 173.
*Research on Melanomas of the Skin. H. Halkin.—p. 189.
*Recovery from Tuberculous Meningitis. A. Cramer and G. Bickel.—p. 226.
Classification of Exotic Diseases. G. Delamare.—p. 245.

Respiration in Exophthalmic Goiter.—Sainton and Schulmann record the spirometer, radioscopy and valve-controlled respiration findings in fifteen patients with exophthalmic goiter. The oculocardiac reflex was also tested, the chest expansion, etc. The tabulated findings confirm the permanent acceleration of the respiration. These subjects were unable to hold their breath for more than eighteen seconds on an average. This testifies to the special need for oxygen.

Melanomas of the Skin.—Halkin precedes his study of six cases of melanomas with a study of fourteen cases of pigmented nevi, as the melanomas always develop from these. His conclusion is that a nevus is a potential sarcoma, whether or not it is pigmented. The melanic pigmentation seems to be an agent of proliferation and an element of malignancy. The melanosarcomas studied developed under the influence of some substance brought by the blood and deposited in the form of melanin.

Cure of Tuberculous Meningitis.—Cramer and Bickel report a case of recovery. The patient was a young man of 19, and they have found records of forty-four other cases of recovery; 30 per cent. were over 20 and 25 per cent. were under 2½ years. The youngest child seemed to be cured but succumbed to a recurrence ten months later. Their review of all this material shows that in treatment only one agent is capable of conquering the invading bacilli. This agent is the patient's own organism. When this offers a vigorous resistance and the bacilli are not especially virulent, a cure may be anticipated in a hygienic environment.

Archives des Maladies de l'App. Digestif, Paris

September 1922, **12**, No. 5

*Chronic Cirrhosis of Liver. M. Villaret et al.—p. 305.
*Motor Functioning of the Stomach. C. Saloz and R. Gilbert.—p. 317.

Chronic Cirrhosis of Liver.—Villaret argues that not alcohol alone but alcohol plus syphilis is often responsible for chronic cirrhosis of the liver. This suggests another point of attack. In thirteen cases tested, the Wassermann reaction was positive in nine.

Tests for Motor Functioning of the Stomach.—Saloz and Gilbert give twenty pages of tables showing the behavior of the contrast suspension and the response to the test meal in 12 normal subjects, in 24 with gastric cancer, 41 with gastric and 8 duodenal ulcer, 38 with gastritis or ptosis, 32 with dyspepsia—a total of 155 cases. Whenever there is organic disease of the pylorus, the Mathieu method of estimating the motor functioning corresponds perfectly to the findings with the contrast suspension, as also in normal subjects. In all others they may or may not harmonize.

Médecine, Paris

September, 1922, **3**, No. 12

*Recent Progress in Biology. J. Gautrelet.—p. 885.
*Internal Functions of the Lungs. H. Roger.—p. 900.
Production of Cholesterin by the Spleen. J. E. Abelous.—p. 907.
*Carbon Monoxid Poisoning. M. Nicloux.—p. 913.
*Experimental Research on Multiple Sclerosis. A. Pettit.—p. 918.
Food Value of Fats and Use in Therapeutics. Maignon.—p. 925.
Peripheral Venous Tension in Cardiovascular Disease. M. Villaret et al.—p. 930.
Aptitude for Pigmentation of Skin. A. Sézary.—p. 935.
Mechanism of Respiration in Emphysema. Creyx.—p. 938.
*Metaphosphoric Acid in Testing the Blood. A. Grigaut and P. Zizine.—p. 943.
On Suspicion of Typhoid. Aynaud.—p. 947.
Treatment of Vagotonia and Sympatheticotonia. E. Schulmann.—p. 950.
Ouabain by the Mouth. C. Dimitrakoff.—p. 954.

Recent Progress in Biology.—Gautrelet's summary review of works on basal metabolism, respiratory capacity, modification of the bleeding time by various drugs, chronaxia, etc., fills fifteen pages. He cites in particular Moureu's demonstration of antioxygens, substances checking auto-oxidations. This is a property of the phenols. Mauriac has noticed that blood has a greater glycolytic action on an isotonic solution of glucose than on normal blood. This fact serves for a simple clinical test for sugar in the blood. The blood is added to two solutions of glucose: In the hypotonic solution hemolysis occurs at once but there is no glycolysis, while in the isotonic solution, glycolysis occurs. He mentions further Bierry's statement that when the elements of the antidiabetic diet are in a certain proportion, the effect on the acidosis is as pronounced as during fasting.

Internal Functions of the Lungs.—Roger explains that the new knowledge on the multiple internal functions of the lungs throws light on the metabolism of fats. In tests on the lungs of a man just executed, he was able to confirm the function of modifying the fats which he had found evident in the lungs of dogs. He has coined the term lipodieresis for this function, and lipodierase for the ferment involved. Lung tissue also destroys glucose and various toxic alkaloids. The lung acts like the liver in this respect. If 0.15 mg. of a 1:100,000 solution of strychnin per kilogram is injected at the origin of the aorta, it kills the animal, while it takes four times this amount for the lethal dose when injected into a peripheral vein. The lung acts by a biochemical process; oxygen alone has no such effect. The experimental research described establishes much closer relations between the lungs and the liver. The physiology of the lungs is undergoing an evolution like that which has transformed the physiology of the liver. We are only beginning to appreciate their complex internal functions. The action of the lungs on fats seems to be analogous to that of the liver on sugar, and both some day may have important clinical applications.

Carbon Monoxid Poisoning.—Nicloux reiterates that the blood corpuscle is not injured irreparably by carbon monoxid displacing the oxygen in the hemoglobin, provided oxygen can be supplied promptly to drive out the carbon monoxid in turn. The corpuscle asks nothing better than to resume its normal functioning with oxygen.

Experimental Multiple Sclerosis.—Pettit urges research in this line, saying that micro-organisms have been found in some cases of sclerosis in patches, but not in all. No cultures have ever been obtained, but the disease has seemingly been reproduced in some animals by inoculation with the "S spirochetes" found inconstantly in clinical cases.

Metaphosphoric Acid in Testing the Blood.—Grigaut and Zizine explain that metaphosphoric acid reveals the presence in the blood of a whole category of nitrogenous substances, mostly polypeptids. They mix 10 c.c. of serum with 6 c.c. of water and 2 c.c. of a 20 per cent. solution of metaphosphoric acid. Then 2 c.c. of binormal solution of hydrochloric acid is added and the whole is agitated and filtered. The filtrate can be used for estimation of the sugar in the blood, and this method has other advantages.

Presse Médicale, Paris

Sept. 2, 1922, **30**, No. 70

Quinidin in Absolute Arrhythmia. Clere and Noel-Deschamps.—p. 753.
*Angina Pectoris plus Syncope. L. Gallavardin.—p. 755.
Amebic Abscess of Liver. E. Bressot.—p. 757.

Syncopal Form of Angina Pectoris.—Six cases are analyzed in which the acute Adams-Stokes syndrome accompanied the angina pectoris. The pulse jumped suddenly from 44 to 70 in one woman of 54; there has been only one recurring attack in the five years since. One man of 60 is still in fairly good condition although he has had eighty attacks, with fall in syncope, during the last twelve years. Only one of the six patients, a man of 72, has died; the acute Adams-Stokes proved fatal the fifteenth day.

Sept. 6, 1922, **30**, No. 71

*Posture Reflexes. C. Foix and A. Thévenard.—p. 765.
Babinski Sign in the Fingers. A. Radovici.—p. 767.
*Access to Elbow. Blanchard.—p. 768.

Posture Reflexes.—This term is used as better descriptive for what Westphal called paradoxic contraction of the muscles when a joint is passively moved. The relation with the tonus, with contracture, and with hypotonia is discussed in health and in disease.

Access to Elbow.—Blanchard explains the advantages of severing the olecranon at the base (wire saw), to reach and correct old backward luxation of the elbow, irreducible otherwise. In a case described, the olecranon was held in place afterward with a longitudinal screw. The operation was completed in twenty minutes, and restoration of function was prompt.

Sept. 9, 1922, **30**, No. 72

*Aortitis with Trigeminal Neuralgia. J. Minet and Legrand.—p. 773.
Pure Pituitary Dwarf Growth. A. Léri.—p. 774.
Cuff for Oscillometer Sphygmomanometry. L. Gallavardin.—p. 776.
Arsenicals in Treatment of Epilepsy. M. Page.—p. 777.
*Abuses of Organotherapy. L. Cheinisse.—p. 777.

Aortitis with Complicating Trigeminal Neuralgia.—In five out of ten recent cases of incoercible trigeminal neuralgia in the last five years, the paroxysmal neuralgia coincided with lesions in the aorta. The cause inducing the aortitis had probably induced arteritis of the central nuclei of the trigeminal nerve. There was nothing to suggest syphilis in three of the five cases, but treatment as for syphilis should always be given a trial with this combination. In the young, this alone may cure promptly. In the elderly, the vascular system is often so pathologic otherwise that other measures are required, and the prognosis is less favorable.

Abuses of Organotherapy.—Cheinisse reviews the discussion on organotherapy at the last annual meeting of the American Medical Association. He remarks that in the United States "commercial interests have seized the vast domain of endocrinology, and nowhere else has the credulity of the public, and, alas, of a large number of physicians been exploited to such an extent as in the United States. Nowhere else have complex questions such as those of endocrinology been presented in a more apparently simple while at the same time most fantastic form."

Sept. 13, 1922, **30**, No. 73

*Spastic Torticollis. H. Roger and L. Pourtal.—p. 785.
*Intraspinal Anesthesia. Abadie and Montero.—p. 786.
Abscess in Tongue; Two Cases. V. Combier and J. Murard.—p. 789.
Auscultation of Pleural Culdesacs. C. Manteux.—p. 790.

Spastic Torticollis.—Radioscopy revealed vertebral lesions in the neck in seven of the eight cases of spastic torticollis described. The coincidence of these vertebral lesions with signs of organic central lesions—which were manifest in nearly all—suggests that the vertebral lesions were secondary to the affection of the midbrain. The vertebral lesions were of the rheumatismal type, the spastic torticollis inducing conditions in the cervical vertebrae affording a point of lessened resistance.

Intraspinal Anesthesia.—In order to reduce the by-effects of intraspinal injection of an anesthetic, Abadie injected beforehand some drug that usually raises the blood pressure. He hoped thus to ward off the drop in the blood pressure otherwise inevitable, but he found that all the drugs injected intraspinally reduced the blood pressure, even those which, injected subcutaneously, had a pronounced pressure-raising influence. The only means to combat the bulbar anemia presumably responsible for the hypotension is by lowering the head. A number of charts are given showing the effects of various experiments.

Sept. 16, 1922, **30**, No. 74

*Calories and Energy. A. Gigon.—p. 797.
Vascularization of Emphysematous Lung. Pissavy and Saidman.—p. 799.
*Deep Radiotherapy. C. Chambacher and P. Descoust.—p. 800.

Need of the Organism in Calories and Energy.—Gigon discusses conditions in which the basal ration is below or above the physiologic standard. He explains that evaluation of the work of the organism in calories is misleading in many cases if not in all. The fats and proteins and carbohydrates have specific properties beyond the merely thermodynamic.

Deep Radiotherapy.—Chambacher and Descoust give the details of eleven cases of mammary cancer and others of cancer of other organs and the skin to a total of twenty-five, and two cases of sarcoma—all apparently testify to the immeasurably superior efficacy of massive doses of very hard roentgen rays in treatment of malignant disease.

Sept. 20, 1922, **30**, No. 75

Latent Tuberculous Appendicitis. E. Perrin and C. Dunet.—p. 809.
*Purpura from Arsphenamin. R. Rabut and P. Oury.—p. 810.

Purpura from Arsphenamin Poisoning.—Rabut and Oury encountered two cases of acute hemorrhagic purpura under arsphenamin treatment within a few weeks, both fatal. Their retrospective analysis of these cases and a similar one reported by Labbé emphasizes the importance of testing the coagulation time, bleeding time, and changes in the globulins whenever a patient taking arsphenamin shows the least symptoms of intolerance. Any hemorrhagic tendency, no matter how slight and transient, should positively forbid continuing with the arsenical. In two of the three cases, minute ecchymoses had been noted in the mucous membrane of the mouth, before the epistaxis. In the other case there was nothing to warn of the impending purpura, but the man complained of lassitude, and there was fever after the dose had been increased to 0.6 gm. In both the cases reported in detail, the leukocytes dropped to 1,000 or 1,200. The benzol element in arsphenamin may be responsible for the leukopenia in such cases.

Sept. 23, 1922, **30**, No. 76

*Pulmonary Tuberculosis. M. Letulle and F. Bezançon.—p. 817.
*Painful Pseudarthrosis of a Rib. Guimbellot and Braine.—p. 821.
Dyspepsia Conditions. Léon-Meunier.—p. 822.

Tuberculous Granulation and Miliary Tuberculosis in the Lung.—Seven photomicrograms are reproduced to sustain the assumption that these two are independent processes. The tuberculous granulation is a precursor of sclerosis, while the miliary tubercle is the chief agent in chronic tuberculosis of the lung.

Pseudarthrosis of a Rib.—The stumps of the fractured rib overlapped and occasionally nipped the pleura between them. Conditions were corrected by resecting the overlapping portions and suturing the stumps end to end.

Sept. 27, 1922, **30**, No. 77

*Epidemic of Botulism. C. Morel and R. de St. Martin.—p. 829.
*Rats as Reservoirs of Plague. Bordas, Dubief and Tanon.—p. 831.
Plastic Dacryorhinostomy. Dupuy-Dutemps and Bourguet.—p. 833.

Epidemic of Botulism.—Morel and St. Martin reiterate the importance of the ocular symptoms from botulinus poisoning. In a recent small epidemic 7 persons were affected of the 11 who had eaten the canned salmon in which the botulinus bacillus was found afterward. In this group of 7, 2 had gastro-intestinal symptoms; 2 complained merely of dryness of the throat and difficulty in swallowing, and in the others the disturbances were mostly in the eyes. There was complete paralysis of accommodation, amblyopia, restriction of the visual field and congestion in the retina; 2 presented mydriasis and one slight ptosis of one eye. There was extreme lassitude and depression with the visual disturbances; the latter developed about five days after eating the salmon. Under strychnin, restriction to water and then to milk, the symptoms had subsided in all by the end of the second month. There were no deaths. The odor and taste had been distasteful to some of the party. The canned salmon was of American origin, and the bacillus coagulated milk.

Plague and Rats.—Bordas and his co-workers found plague bacilli in twenty-nine of the more than 5,000 rats examined July to December, 1921, at Paris. The rats affected seemed normal in every particular. They are not casual healthy carriers but must be regarded, they say, as reservoirs of the plague virus. This virus may pass from rat to rat without anything suggesting their infection until some day the virus may grow more virulent, and the rats then will sicken and the human epidemic may follow. A rat enzootic follows the epizootic when plague has once prevailed in a place, and the plague may reappear at any moment without any new importation of virus from without.

Sept. 30, 1922, **30**, No. 78

*The Basal Metabolism. M. Labbé and H. Stévenin.—p. 841.
*Meningeal Symptoms in Ascaridiasis. H. Turcan.—p. 844.
*Hemat-therapy in Measles. L. Cheinisse.—p. 846.

Research on the Basal Metabolism.—Labbé gives an illustrated description of the apparatus he uses, claiming that it is as reliable and exact as Benedict's apparatus while it is much simpler and easier to manage.

Meaingeal Symptoms from Ascaridiasis.—Turcan reports a case of what seemed to be acute meningitis in the young

man for seven days. Then after a dose of calomel and evacuation of forty-six ascarids the convulsions, etc., subsided. He warns, however, that the appearance of helminths in stool or vomit does not prove that they are responsible for the meningeal symptoms. When the meningitis is of the tuberculous type, it is well to bear in mind the possibility of a toxic meningitic reaction to helminths. The spinal puncture fluid may resemble that of tuberculous meningitis.

Injection of Convalescent's Blood in Treatment and Prevention of Measles.—Instead of using the serum only, Ruelle injected intramuscularly citrated whole blood from measles patients at the seventh day, and reports encouraging results in prevention in child contacts. Maniel has recently reported the curative action of convalescents' blood in a grave case of measles pneumonia in a soldier. Cheinisse cites some other instances of a curative effect from injection of blood in grave or malignant measles.

Progrès Médical, Paris

Sept. 9, 1922, **37**, No. 36

The Choice of Climate in Heliotherapy of Surgical Tuberculosis. Bufnoir.—p. 419.
*Latent Gonorrhea. Roussille and Trabaud.—p. 422.
Non-Tuberculous Vesiculitis. Leguen.—p. 423.
Ovarian Organotherapy. M. Dalché.—p. 425.

Latent Gonococcus Infection.—Roussille and Trabaud report a case of ascending pyelonephritis as a rare complication of latent gonococcus infection, and they emphasize the importance of vaccine therapy in such cases. This observation shows the remarkable latency of the gonorrhea which seemed cured and behaved as such for sixteen years. The disturbances appeared with influenza, and its virus may have helped the flaring up of the latent gonococcus infection. They advise making cultures from the semen when urinary disturbances appear with influenza in patients with a history of gonorrhea, no matter how far back the infection had occurred.

Schweizerische medizinische Wochenschrift, Basel

Aug. 24, 1922, **52**, No. 34

Fatal Compression Cyanosis from Brief Physical Exertion. E. Hedinger.—p. 833.
*Calcium as Experimental Antidote for Cocain. K. Mayer.—p. 835.
Case of Dissociation of Mental Faculties. M. Tramer.—p. 838.
Dermographism in Diagnosis. L. Schwartz.—p. 842. Conc'n.

Calcium to Combat Cocain Poisoning.—Mayer reports the results of extensive research in a quest for an antidote for cocain. He found that the toxic action of cocain could be attenuated in animals by administration of calcium salts. The action of cocain seems to be checked by calcium and enhanced by potassium, hence he concludes that the action of cocain is dependent on the balance between the ions of calcium and potassium. Cocain and calcium seem to have a reciprocal inhibiting action in respect to lipoids, especially suspensions of lecithin. He declares that his research has established that the action of cocain depends on physical-chemical colloid processes, not on chemical processes. The potassium ion is an antagonist of calcium, and the theoretical assumption that an excess of potassium would enhance the toxicity of cocain was proved to be the actual fact in experiments on the frog heart.

Sept. 21, 1922, **52**, No. 38

*Respiratory Gas Interchanges with Goiter. F. de Quervain.—p. 925.
Idem. F. H'Doubler.—p. 926.
Postencephalitic Parkinsonism. A. Secrétan and E. Hedinger.—p. 937.
*The "Eight Diseases of Basel." A. Martin.—p. 939.

Respiratory Gas Interchanges with Goiter in Children.—De Quervain emphasizes the importance of the respiratory basal metabolism for estimation of goiter and the effects of treatment. H'Doubler analyzes four cases from this point of view, and also three other cases in which the gas interchange control was recorded before and after thyroid grafting in cretins. Extensive resection of the vascular goiter of the prepuberty stage reduced the basal metabolism by an average of 17 per cent. Resection of the goiter in one of the cretins did not reduce the basal metabolism, thus confirming the functional inferiority of the cretin thyroid. The respiratory basal metabolism in the cretins was low, and there was no change or it grew still lower after the thyroid grafting. The implant was not the best adapted for the purpose or the children were too old.

Prophylaxis of Contagion in the Fourteenth Century.—Some municipal regulations regarding eight diseases are quoted from the Basel records. Martin ascribes to the Church the rigorous isolation of lepers, enforcing the biblical ban.

Annali d'Igiene, Rome

July, 1922, **32**, No. 7

Types of Pneumococci Predominant in Italy. T. Pontano.—p. 525.
Significance of Much's Granules in Surgical Tuberculosis. F. M. Marras.—p. 544.
Scientific Bases for Prevention of Tuberculosis. F. Neri.—p. 550.

Archivio Italiano di Chirurgia, Bologna

October, 1921, **4**, No. 2

*Motor Functioning of the Intestine. G. C. Segale.—p. 101.
Bases for Correction of Visceral Ptosis. G. Parlavecchio.—p. 165.
Sarcoma of the Hand. M. Bufalini.—p. 189.
Peptic Jejunal Ulcer. C. Bortolotti.—p. 210.

Motor Functioning of the Intestine.—Segale tabulates the results and findings later after all or a portion of the small intestine had been resected, turned around, and sutured in place again. He operated in various ways on twelve dogs and one monkey to realize conditions for antiperistalsis, and reports the roentgenographic findings.

Pediatria, Naples

Sept. 15, 1922, **30**, No. 18

*Purulent Pleurisy in Children. I. Nasso.—p. 841.
*Primary Diphtheria of the Vulva. V. Tripputi.—p. 853.
Ferments in Cerebrospinal Fluid. L. Sabatini.—p. 863.
Thoracotomy in Purulent Pleurisy in Children. N. Caprioli.—p. 877.

Purulent Pleurisy in Children.—In the 180 cases at the children's clinic at Naples in the last seven years, 74 per cent. were in infants. Repeated aspiration was applied in 28 cases, with 15 complete cures. In the last series of 15 cases this aspiration treatment was supplemented with autogenous vaccine therapy by intravenous or intramuscular injection. Two of the 15 had to be sent finally to the surgeon, but 10 recovered and only one died. The recovery was complete in 66.6 per cent., roentgen examination later confirming the complete cure. The reaction to the vaccine became more intense each time as the condition improved. The vaccine was made by sowing a drop of pus in culture mediums containing rabbit blood. The culture was emulsioned in physiologic saline (0.5 per cent. phenol), and inactivated at 60 C. for an hour; each dose corresponded to 2 millions of the pneumococci. The injections were made on alternate days. The 15 cases are described in detail. All were infants except 3 children under 5. The one that died was a 13 months infant with purulent pleurisy on both sides after a month of fever and convulsions.

Primary Diphtheria of the Vulva.—In the first of Tripputi's two cases, an older brother had diphtheria of the throat when the child of 3 developed the primary diphtheric vulvovaginitis with fatal toxic myocarditis. The second child was an infant of 20 months, and acute paralysis of the heart was the cause of death here also, both children showing fatty degeneration of the myocardium. Antitoxin treatment was not begun till too late, as the nature of the vulvovaginitis was not suspected for a long time. The cases teach the necessity for taking smears when a vulvar affection suggests even remotely a diphtheric affection.

Memorias do Instituto Oswaldo Cruz, Rio de Janeiro

1922, **14**, No. 1

*Cardiac Form of Trypanosomiasis. C. Chagas and E. Villela.—p. 5.
Rare Type of Necrosis of Liver. C. Magarinos Torres.—p. 62.
Certain Helminths of Fishes. A. L. de B. Barreto.—p. 68.
Certain Helminths of Brazilian Fauna. Lauro Travassos.—p. 88.
Biology of Certain Brazilian Trematodes. A. Lutz.—p. 95.
*The Bacteriophagum. J. da Costa Cruz.—p. 104.
The Serodiagnosis of Syphilis. A. E. de Aréa Leão.—p. 117.

Cardiac Form of American Trypanosomiasis.—Chagas and Villela give the details of sixty-three cases of Chagas' disease, endemic trypanosomiasis or trypanosome thyroiditis, as it is variously called, with the tracings showing the extreme derangement of the heart action. The symptoms of cardiac

insufficiency differed in the different cases, but paroxysmal tachycardia was frequent. The ages ranged from 20 to 55, with two children of 11 and 17. This cardiac form of the disease is the most fatal type. They state that they do not know of any other disease in which sudden death occurs in such a large proportion of the cases.

Transmissible Bacteriolysis.—Da Costa Cruz concludes from his experimental and clinical experience with d'Herelle's bacteriophagum that it is a ferment or, rather, a catalyzer. It belongs to the bacterium, and is employed by it in its normal metabolism to disintegrate certain substances composing its membrane. This catalyzer must be a colloid, as it does not dialyze. It seems to be a kind of endocomplement, not secretable. Specific antiserums inhibit the bacteriophagic action, and he declares that an antibody differs from the bacteriophagum only by its albuminoid substratum. This substratum is, besides, the only difference between antibodies for a given antigen, when derived from different species of animals.

Semana Médica, Buenos Aires

July 20, 1922, **2**, No. 29

*Preferable Technic for Craniotomy. G. Zorraquin.—p. 113.
Suggestions for the Academy of Medicine. G. Aráoz Alfaro.—p. 131.
*Physical Symptoms in Central Pneumonia. O. E. Adorni.—p. 137.
Index of the Bacterial Count in Milk. Enrique Fynn.—p. 141.
*Radiotherapy in Pulmonary Tuberculosis. A. Cetrángolo.—p. 143.
*Acid Reaction of Decoctions of Organs. Soler and Tedeschi.—p. 144.
The Posture as Aid in Diagnosis. A. Vitón.—p. 147.
Ovarian Abscess Suture Without Drainage. J. G. Ruiz.—p. 149.
*Bacterial Proteins in Relation to Immunity. R. Cárcamo.—p. 150.
Serotherapy in Tuberculosis. J. A. López.—p. 155.
*Venesection in Eclampsia. A. Borton.—p. 159.

Universal Craniotomy.—Zorraquin argues that we must follow Nature's method for relieving intracranial pressure. Nature does this on the region where pressure is most dangerous, namely, by dehiscence of the sutures in the bregma or by an opening in the top of the skull. He explains that a large horse-shoe craniotomy here gives exceptionally ample access to the more important parts of the membranes and cortex while the danger of hemorrhage is least. Seventeen illustrations show the technic and the findings. A similar article by Zorraquin, in French, was reviewed, May 13, 1922, p. 1495.

Central Pneumonia.—Adorni describes two cases in which the onset of the pneumonia in the central portion of the lung was not accompanied with pain. In other cases described, the pneumonia process beginning in the central portion rapidly spread toward the surface, but still without pain. The central process may not induce dyspnea, but there is always a zone of greater resonance over the lobe affected, and the vocal vibration is reduced in this zone, as also the vesicular murmur.

Irradiation of Spleen in Treatment of Tuberculosis.—This indirect radiotherapy was applied by Cetrángolo in fifteen cases, and in all there was an increase in weight ranging from 200 gm. to 3.1 kg. The appetite improved in nearly all, and the temperature and cough were reduced.

Acidity of Decoctions of Organs.—This research reported was undertaken to explain the mechanism of the intense acidity which develops in extracts of certain organs under long boiling.

Mechanism of Immunity.—Carcamo analyzes the influence on the phenomena of immunity of the amino-acids resulting from dissociation of bacterial proteins.

Venesection in Eclampsia.—Borton adds two more cases to those on record in which drawing 1,000 gm. of blood, supplemented by promptly evacuating the uterus, arrested the grave eclampsia at or near term. Both his patients were primiparae.

July 27, 1922, **2**, No. 30

Pedunculated Hydatid Cyst in Mesentery. Castex and Lorenzo.—p. 169.
*Ocular Localization of "Rheumatism." O. Wernicke.—p. 176.
Present Status of Surgery in France. R. Nicolini.—p. 185.
Teaching of Psychiatry. Merzbacher.—p. 194. Reply. Sierra.—p. 197.
Deep Radiotherapy. Carlos Heuser.—p. 201. Cont'n.
The Facies as Element in the Diagnosis. A. Vitón.—p. 205.

Ocular Localizations of "Rheumatism."—Wernicke's assertions in regard to multiple sclerosis as a manifestation of rheumatismal intoxication were mentioned in THE JOURNAL, Oct. 7, 1922, p. 1278. He here gives nineteen illustrations of the various ocular lesions for which the rheumatismal intoxication may be responsible. The focus or foci may be in any of the tissues of the eye.

Beiträge zur klinischen Chirurgie, Tübingen

1922, **127**, No. 1

*Sensitivity of Blood Vessels. W. Odermatt.—p. 1.
*Operations for Goiter. H. Flörcken.—p. 85.
*Treatment of Empyema. V. H. v. Csákányi.—p. 98.
*Purpura of the Bladder. I. Szabó.—p. 116.
Cholesteatoma in Urinary Passages. W. J. Klug.—p. 123.
Adenoma in Small Intestine. O. Wiedhopf.—p. 132.
The Biology of Wound Processes. E. Melchior.—p. 138.
Cholangitis in Relation to Spleen and Liver. A. Tietze and C. Winkler.—p. 152.
Stomach Functioning with Gallbladder Disease. W. Boss.—p. 163.
Surgery of the Pancreas. A. Cohn.—p. 177.
Volvulus of the Cecum. Harttung.—p. 183.
Results of Operations for Cancer of Intestine. K. Jelaffke.—p. 191.
Pathogenesis of Torsion of the Omentum. G. Wolff.—p. 198.
Surgical Treatment of Peritonitis. R. Reichle.—p. 207.
Steinach's Operation: Four Cases. F. Schreiber.—p. 212.
*Operation on Contracted Finger. H. Rahm.—p. 214.
Injury from Iodin and Anesthetic Fumes. M. Weichert.—p. 218.
*Treatment of Gastroptosis. A. Rudolf.—p. 223.
Intravenous Saline Drip Infusion. Wiedhopf and Hilgenberg.—p. 229.

Sensibility of the Blood Vessels.—Odermatt reviews the history of research in this line, mentioning Kast and Meltzer among the pioneers. He has been studying this subject at operations and intravenous injections for years, and also on dogs and rabbits. He gives tracings, and five pages of bibliographic titles, set solid. He concludes from all these data that there is no sense of pain in the inner wall of arteries and veins, but the capillaries are extremely sensitive. They form the working organ of metabolism, while the arteries and veins, inside, are merely pipes. The network of nerves on the outside of the arteries responds with pain to any chemical, thermal, electric or mechanical stimulus. After removing this periarterial network sheathing the artery—peripheral sympathectomy—the artery can be clamped without pain. The thinner the walls of the blood vessel, the more readily the nerve sheath feels the effect of changes in the blood pressure within. It is important for the surgeon to bear in mind that sensitivity for substances in the blood stream is an attribute of the capillaries. The arteries and arterioles, on the other hand, have the special function of responding to stretching of their walls with local or general reflex changes in the blood flow or with pain or both. The pain from ligation of an artery is not from the artery itself but only from the periarterial tissue; ligation of veins does not directly induce pain.

Goiter Operations.—Flörcken concludes from his 263 goiter operations that rebellious exophthalmic goiter calls for bilateral resection with ligation of the four arteries. With bilateral goiter, bilateral resection is required, but the prevalence of tetany at present warns to be cautious with very radical intervention; perhaps one of the inferior thyroid arteries had better be left unmolested. In eight cases the operation was for recurrence. In one case there was transient air embolism after bilateral resection; the ligature on the severed anterior jugular vein had loosened. In another case the softened wall of the sabre-sheath trachea collapsed as the thyroid was resected. The suffocation was arrested by passing a silk suture thread through each side of the trachea and thus pulling the collapsed walls apart. The ends of the threads were brought out through the wound and fastened to the skin. The threads were removed the seventh day and there was no further disturbance. In two cases of exophthalmic goiter, after futile roentgen-ray treatment, the operation was exceptionally difficult on account of adhesions and hemorrhage.

Treatment of Empyema.—The decision to operate is becoming more prevalent as conservative measures so often fail, and an operation then has far less chance of success. Ninety-seven cases are here reviewed.

Purpura of the Bladder.—The two cases reported were in a young woman, recently married, and a man of 33. Both were given sodium bicarbonate four times a day and meat was prohibited. The subjective symptoms subsided in five and ten days, and the hemorrhagic patches in the bladder

walls had nearly all retrogressed in three weeks in the man. The woman did not return for examination. Szabó theorizes that purpura of the bladder and simple ulcer of the bladder are merely two phases of the one affection, and that this affection is the same in both bladder and stomach. The urine has to be kept alkaline. Alkaline mineral waters usefully supplement the sodium bicarbonate by the mouth.

Treatment of Finger Contracture.—Rahm's colored plates explain the technic and the excellent results of Morestin's method of correcting contracture of a finger. The weblike tissue holding the finger flexed is divided lengthwise and then cut across in radiating alternate lines. The finger can then be extended, and the triangular flaps from each side can be fitted together to restore the normal outline of the finger. The finger never regains active movement, but it is easily flexed passively by the finger beyond.

Surgical Treatment of Gastroptosis.—Rudolf reports a complete cure in 61.67 per cent. of sixty-six cases and no benefit in 11.66 per cent., after operative measures. The percentage of failures with the Rovsing method was 15.6 but only 7.1 per cent. when the round ligament of the liver was used to suspend the stomach from the costal arch. Although gastroptosis is merely one manifestation of a general tendency, the excellent results of gastropexy justify its extensive application, especially in girls. Maternal ptosis, he says, can generally be controlled by a proper support.

Deutsche medizinische Wochenschrift, Berlin

Aug. 25, 1922, **48**, No. 34

Alcohol in Vacuum Sterilization. Hahn and Friedmann.—p. 1125.
Mode of Origin of Pulmonary Tuberculosis. W. Baumgarten.—p. 1126.
*Toxicity of Tuberculins. Schwermann.—p. 1127.
Biologic Aspects of Treatment of Surgical Tuberculosis. Drügg.—p. 1128.
Note on Etiology of Arteriosclerosis. C. Frobœse.—p. 1129.
*Blood Pressure Findings After Beer Drinking. P. Engelen.—p. 1130.
Organ Extracts in Diagnosis of Syphilis. Klostermann and Weisbach. —p. 1131.
Precipitation Tests in Serodiagnosis of Syphilis. Meinicke.—p. 1132.
Utilization of Albumin Preparations. F. Müller.—p. 1133.
*Hypersensitiveness of Skin to Roentgen Rays. L. Haas.—p. 1134.
Theory of Stimulating Action of Roentgen Rays. M. Fraenkel.—p. 1136.
Relations Between Sagging Kidney and Paralysis of Gastro-Intestinal Tract. Plenz.—p. 1137.
Affections of the Knee in Surgical Practice. Ledderhose.—p. 1141.
Fomentations in Ophthalmologic Practice. K. Steindorff.—p. 1143.

Tuberculins.—Schwermann emphasizes that Neustadt and Stadelmann have given abundant confirmation through their unfortunate experiments of the fact that injections of tuberculin, if not given cautiously, may do great damage. But they have not furnished the slightest proof that diagnostic injections of tuberculin, given properly, cause any injury. Their endeavor to prove that the subcutaneous tuberculin test is unreliable and worthless was unsuccessful; nor were they able to weaken the evidence in favor of the specificity of the tuberculin reaction.

Blood Pressure Findings After Beer Drinking.—Engelen found from experiments on ten subjects that the drinking of one or two bottles of beer exerted no constant effect on either systolic or diastolic blood pressure.

Hypersensitiveness of the Skin to Roentgen Rays.—Haas advances reasons for believing that the hypersensitiveness of the skin to roentgen rays may be connected with endocrine disturbances, for which reason, if such disturbances are suspected, one should begin roentgen irradiation very cautiously. The possibility of hypersensitiveness to irradiation should always be taken into account in therapeutic practice, to prevent unpleasant effects from arising. In one patient the hypersensitiveness may concern one layer of the skin, and in another patient another layer, or two or more layers may be simultaneously affected.

Deutsche Zeitschrift für Chirurgie, Leipzig

August, 1922, **173**, No. 1-6

*Blood-Borne Acute Nephritis. B. Runeberg.—p. 1.
*Ventrifixation and Its Complications. B. Tenckhoff.—p. 26.
Splenectomy for Spontaneous Rupture of Spleen. M. Friesleben.—p. 45.
Angioma in Peripheral Nervous System. R. Sommer.—p. 65.
*Predisposition to Disease. A. Theilhaber and H. Rieger.—p. 78.
Intravenous Ether Anesthesia. W. Dietrich.—p. 110.
Vascular Tumors in Knee Capsule. Haas.—p. 130.
*Rupture of Vertebrae. F. Harbitz.—p. 142.
Injuries of Spine. O. Steiner.—p. 153.
*Stomach Functioning After Gastro-Enterostomy. J. Palugyay.—p. 197.
*Bacteria in Portal Vein Blood. W. Haas.—p. 239.
Resection of Stomach Under Local Anesthesia. O. Orth.—p. 294.
*Plastic Operations on Tendons. E. Schwarz.—p. 301.
*Fat as Filling for Bone Cavities. G. Iseke.—p. 386.
Mechanical Injury by Ascarids. W. Gerlach.—p. 396.

Blood-Borne Acute Nephritis.—Runeberg's address was summarized in THE JOURNAL, Dec. 17, 1921, when published elsewhere.

Ventrifixation.—Tenckhoff expatiates on the advantages of the Doléris-Gilliam method of ventral suspension of the uterus by the round ligaments. This is an excellent method also for treating genital prolapse, supplemented by measures to reduce the diameter of the vagina. He reports two cases of ileus from ventrifixation by other methods.

Treatment That Imitates Nature.—Theilhaber argues that the variations in the cellular immunity are an important factor in the development of cancer, tuberculosis, chronic joint and vessel disease, etc. Nature responds to any injury or toxic action by throwing up the barrier of an inflammatory process. This summons to the spot a host of substances to enhance the resisting powers, the immunity, of the tissues involved: red and white corpuscles, platelets, fibrin, sugar, silicic acid, calcium, phosphorus, etc. Immune bodies are produced in the process, and our aim in treatment should be to copy this natural defensive inflammatory process. This can be accomplished with diathermy plus venesection, plus injection of substances to induce lymphocytosis, plus hydrotherapy, heliotherapy, revulsion to the skin, and other measures to stimulate the cells to increased production of immune bodies. In the 44 cases of cancer he has treated on these principles, the patients returning frequently for diathermy, etc., after their operation, 32 have shown no signs of recurrence. The interval since has been over five years in 11.

The diathermy every few months in the region of the cancer increases the cellular immunity, and this checks any tendency for malignant proliferation of the epithelium. In the great majority of his 50 cases of arthritis deformans, great improvement and subsidence of the pains were realized with treatment along these lines, beginning with diathermy supplemented with venesection and injection of thymus and spleen extract. With arteriosclerosis, revulsion to the skin proved a useful adjuvant to the other measures. In fibrous tuberculosis, venesection twice a year, diathermy to spleen and lung, air and sun baths, and friction of the skin were supplemented by injection of thymus extract to induce lymphocytosis. Roentgen ray exposures of the spleen answer a similar purpose, but there is danger of reducing function if the dose is too powerful. Silicic acid and inhalation of substances to irritate the lungs aid the stimulating action desired.

Fracture of the Spine.—Harbitz describes in particular the fracture from indirect force at a typical point in the cervical portion, and the Kümmell fracture of a dorsal vertebra.

Functioning After Gastro-Enterostomy.—Palugyay reports extensive roentgenoscopic research on the functioning of the stomach after various forms of posterior gastro-enterostomy, in sixty-one cases of gastric or duodenal ulcer. It has demonstrated the necessity for considering the size and shape of the stomach in selecting the method to follow, rather than the location of the ulcer. With dilation of the stomach, it may be wise to wait until the organ has returned to normal size under the proper measures. With a cow-horn stomach, the anastomosis had better be near the pylorus.

Bacterial Content of Portal Blood.—Haas reports twenty-two experiments on cats, rabbits and guinea-pigs, and forty cases of abscess in the liver—all testify against the assumption that the portal blood contains bacteria as a rule. Infection of the liver occurs usually by other routes, predominantly by the bile duct system. Four pages of bibliographic titles are appended.

Plastic Operations on Tendons.—This is a long study of the anatomy of the regeneration of tendons.

Fat Filling for Bone Cavities.—Iseke has recently reexamined three cases in which a tuberculous cavity in a bone was plugged with fat tissue more than ten years ago. In

these and in twenty-two other cases of filling up a cavity with fat, the outcome was contradictory. In some, the fat seemed to prevent the regeneration of the bone to fill up the cavity; in others it seemed to have stimulated the repair of the bone so that there was scarcely a trace of the former cavity. He ascribes this difference in the result to an inflammatory reaction. When there is no such reaction to stimulate the regeneration of the bone, it does not occur. This method of plugging a bone cavity has proved particularly advantageous when the focus was near a joint, and even when parts of the joint had been removed.

Münchener medizinische Wochenschrift, Munich

Aug. 11, 1922, **69**, No. 32

The Present Status of Kidney Surgery. v. Kielleuthner.—p. 1173.
*Local Treatment of Cystitis. Schottmüller.—p. 1174.
Blister Test of Tendency to Edema. M. Gänsslen.—p. 1176.
Blister Serodiagnosis in Congenital Syphilis. Thomas et al.—p. 1178.
Microscopy of Capillaries in Roentgen Ray Erythema. Schugt.—p. 1178.
The Technic of Albumin Milk. B. Bleyer.—p. 1180.
The Wildbolz Urine Reaction. F. Georgi.—p. 1182.
Essential Nature of Wassermann Reaction. W. Bruck.—p. 1185.
Tannin in Dyspeptic Conditions in Children. Heidingsfeld.—p. 1185.
Use of Tissues for Various Plastic Purposes. J. F. S. Esser.—p. 1186.
Artificial Arms from Physiologic Standpoint. M. zur Verth.—p. 1187.
Muscular Rheumatism. Gaugele.—p. 1189.
Malpractice Suit Against Midwife. A. Döderlein.—p. 1191.
Spina Bifida Occulta and Its Sequels. M. Hackenbroch.—p. 1191.
Swelling of Bronchial Glands After Pharyngitis. A. Bittorf.—p. 1192.
Round Ulcers of Duodenum and Esophagus. E. Schaezler.—p. 1193.
Leukemia. P. Morawitz.—p. 1194.

Treatment of Cystitis and Cystopyelitis with Silver Nitrate.—Schottmüller gives the results of his treatment of eighty-nine women and eleven men suffering from cystitis or cystopyelitis. After evacuation of the bladder, he injects by means of a rubber catheter 100 c.c. of a 2 per cent. silver nitrate solution into the bladder, and leaves it there five minutes, if possible. In case the tenesmus is too violent, this time is shortened, lest the silver nitrate solution, through the contraction of the bladder, should be pressed into the urethra. When the silver nitrate solution has been withdrawn through the catheter, the bladder is rinsed out thoroughly with physiologic sodium chlorid solution until the returning fluid is perfectly clear. He injects the sodium chlorid to split the silver nitrate, lest any traces remaining in the bladder after removal of the catheter should enter the urethra and cause irritation. In very sensitive persons narcotics are sometimes necessary. Sometimes one injection suffices to effect a cure, but usually from three to four injections are required. Of the 100 patients last treated, 82 per cent. were cured, which Schottmüller thinks is a higher percentage than has been cured by other methods, to judge from the reports in the literature.

Aug. 25, 1922, **69**, No. 34

Mechanism of Axial Torsion of Internal Organs. Sellheim.—p. 1237.
The Sympathetic Nervous System. L. R. Müller.—p. 1239.
Psychic Factors in Organic Diseases. G. R. Heyer.—p. 1241.
Van Slyke's Test for Acetone Bodies in Urine and Blood. Lintzel.—p. 1243.
Schick Diphtheria Test in Adults. Bugendörfer and Zimmermann.—p. 1245.
Gastric Ulcer in Relation to Tabes. Full and L. v. Friedrich.—p. 1246.
Treatment of Pleuritis and Pleural Empyema. A. Bacmeister.—p. 1248.
The Treatment of Abortion. W. Schmitt.—p. 1250.
*Trophic Ulcers. E. Seifert.—p. 1253.
*So-Called Symptomatic Icterus Neonatorum. F. A. Deluca.—p. 1254.
Inversion of Bladder in Cancer of Uterus and Vagina. Haub.—p. 1254.
Hydatid Cyst in a Lactating Mamma. W. Burkhardt.—p. 1255.
Treatment of Whitlow. W. Herrlen.—p. 1255.
High Blood Pressure During the Climacteric. F. Haub.—p. 1256.
Traumatic Brain Injuries Occurring at Birth. F. Wohlwill.—p. 1256.

Trophic Ulcers.—In the two cases described, the femoral or popliteal artery had been severed in the repair after traumatic injury. Trophic ulcers developed from the unintentional peripheral sympathectomy—thus a reversal of the usual sequence. When trophic ulcers develop after injury of nerves, this periarterial sympathectomy may cure the tendency. But here the reverse occurred. This probably is the explanation of certain cases of gangrene after apparently successful operations on vessels: The unintentional sympathectomy upsets the trophic balance.

Jaundice in the New-Born the Result of Hemorrhage from Birth Trauma.—Deluca's article was summarized in THE JOURNAL, March 11, 1922, p. 766, when published in Spanish.

Wiener Archiv für innere Medizin, Vienna

April 5, 1922, **4**, No. 1

*Stenosis of Isthmus of Aorta. A. Edelmann and R. Maron.—p. 1.
*Plethysmography and the Heart. Liebesny and Scheminzky.—p. 11.
Tuberculous Stricture in Duodenum. A. Loew.—p. 19.
*Influence of Phosphoric Acid on Sugar Level. Elias and Weiss.—p. 29.
Phosphorus Content of Serum in Tetany. Idem.—p. 59.
*Erythremia: Polycythemia. F. Högler.—p. 65.
*Spondylarthritis Deformans. R. Hoffmann.—p. 91.
*Nitrogen in Edema Fluid. R. Strisower.—p. 115.
*Action of Amyl Nitrite and Atropin. S. Peller.—p. 121.
*Hyperglycemia with High Blood Pressure. H. Kahler.—p. 129.
*Familial Bronzing. A. V. Frisch.—p. 149.
*The Water Freshet Test. I. Daniel and F. Högler.—p. 167.

Stenosis of Isthmus of Aorta.—Edelmann and Maron give an illustrated description of a case in a man of 25. The symptoms suggested aneurysm of the aorta except for the extreme development of collateral circulation and the great difference between the blood pressure and pulse in the arms and legs. One person with stenosis of the isthmus is known to have reached the age of 92, but these subjects generally succumb to the physical strain of life in the twenties. They should be guarded against physical strain; military service or repeated pregnancies frequently appear in the previous history of the fatal cases.

Plethysmographic Tests of Heart Functioning.—The tracings given show that the plethysmograph record varies in the response to effort and even to the idea of effort. Hence it is not a reliable index of the functional capacity of the heart. It testifies, however, to the instability, irritability and sensitivity of the vasomotor system.

Influence of Phosphoric Acid on Sugar in Blood and Urine.—Elias and Weiss present evidence of the reduction of the sugar content of the blood and urine after injection by the vein of a hypertonic solution of sodium phosphate. This occurs only when the sugar level is above normal.

Erythremia.—Högler remarks that research on the 150 cases of polycythemia on record has failed to explain the etiology, but great progress has been realized in treatment with radiant energy. Five cases are described which confirmed the efficacy of the radium rays applied to the spleen and bone-producing apparatus. The blood returned nearly or quite to normal, and the purpura-like changes in skin and mucosae vanished, but the urticaria disappeared only in the irradiated areas. The radium acts on the constant hyperplasia of the blood-producing apparatus, and there are no general disturbances afterward such as often follow roentgen treatment. He exposed the bones, the thorax, the extremities and the spleen, when it was enlarged, using many fields 4 cm. square, and a highly active radium element. The polycythemia was of several years' standing, up to thirty, and the course of radium treatment took one or two weeks. Notwithstanding this extensive treatment, there was no appreciable general disturbance. The benefit persisted for a year or two, and then symptoms returned, but they yielded anew to another course of radium exposures.

Vertebral Affection Connected with Osteomalacia.—Hoffmann encountered at Vienna between September, 1920, and April, 1921, twenty-three cases of a painful and deforming spondylarthritis in middle-aged persons. He explains it as a manifestation of osteomalacia, and links it with spondylitis deformans which represents a later phase of the same process. Six cases are described in detail. Treatment is that for osteomalacia in general, cod liver oil, phosphorus and calcium. In some cases surprising benefit followed five or ten injections of epinephrin. The recent prevalence of the vertebral affection he ascribes to starvation osteomalacia.

Nitrogen in Edema Fluid.—Strisower found the nonprotein nitrogen of the edema fluid usually higher than in the blood, up to 0.06 per thousand or more with disease in heart or kidneys.

Action of Amyl Nitrite and Atropin.—Peller studies in particular the action during attacks of angina pectoris.

Hyperglycemia with High Blood Pressure.—The findings in 116 cases of high blood pressure are tabulated, as also in numbers of cases of dyspnea, congestion of the liver in heart disease—all with normal blood pressure. The blood sugar, fasting, was within normal range in nearly all. The

exceptions were in cases with uremia or eclampsia, or sclerosis of the pancreas vessels, or stasis with high blood pressure. The glycemia response to test injection of epinephrin did not seem to be influenced by the high or normal blood pressure.

Familial Bronzing.—Frisch found the same bronzing in two brothers of his patient with bronzed diabetes. The mother and the eight children had all been unusually dark. The three men looked as if they had Addison's disease, but the brothers had been healthy except for cirrhosis of the large and hard liver, not interfering materially with the general health. The bronzing was congenital, a familial hemochromatosis.

The Water Freshet Test.—After the test ingestion of 1 or 1.5 liter of water in half an hour, fasting, and examining the urine output, every half hour for six hours, Daniel and Högler supplement the findings by the erythrocyte count and the viscosimetric findings at the first and second half hours and the sixth hour. These supplementary data throw light on the actual retention of water after the test, and whether this retained water is in the blood or the tissues. They reveal further any disturbance in the elimination of water by the kidneys, with or without any special predisposition to edema. Six charts are given of the data from some typical cases. They allow remarkably instructive oversight of conditions in pathologic cases.

Wiener klinische Wochenschrift, Vienna

Aug. 10, 1922, **35**, No. 32

Protection Against Injuries from Phototherapy. I. M. Eder and L. Freund.—p. 681.
*Hunger Pains in Diagnosis of Ulcer. H. Schur.—p. 684.
A Peculiar Case of Necrosis of the Pancreas. L. Kraul.—p. 687.
*Griess Test for Infection in Urinary Tract. O. Weltmann.—p. 688.

The Genesis of Hunger Pains and Their Significance for the Diagnosis of Ulcer.—Schur states that in painful gastric ulcer there are found regularly local inflammation and inflammatory swelling of the regional lymph glands. The ulcer pains are associated with these symptoms of inflammation. The precipitating factor is external pressure and contractions of gastric musculature surrounding the site of the inflammation. Hyperacidity of the gastric content and contractions of the musculature he does not regard as sufficient cause for gastric pains. Hunger pains give further reliable evidence for the localization of an inflammatory affection in the pylorus region. As a rule, the affection will be an ulcer. If there is a pronounced periodicity of the symptoms, the diagnosis of ulcer is almost absolutely certain.

Griess Test for Infection in Urinary Tract.—Weltmann has checked the results of the Griess test in a considerable number of cases and reports that positive reactions in urine freshly passed constitute a reliable sign of infection of the urinary tract. A positive reaction indicates in a very simple manner, without microscopic or bacteriologic examination, that there is bacterial activity in the urinary tract, as nitrites are not found in the urine except from bacterial action. In the Griess test as modified by Ylosvay, 0.5 gm. of sulphanilic acid is dissolved in 150 c.c. of diluted acetic acid (Solution 1); 0.2 gm. of solid α-naphthylamin is heated in 20 c.c. of distilled water, the colorless solution poured off from the blue residue is mixed with 150 c.c. of diluted acetic acid (Solution 2). Solutions 1 and 2 are combined and form the reagent as ready for use, which should be kept in a bottle with a tightly fitting glass stopper. The test will demonstrate exceedingly small quantities of nitrites if present. If positive, the urine assumes a cherry-red color on addition of the α-naphthylamin. Weltmann was able to show that fresh urine that did not give the reaction, if inoculated with a drop of positive urine, in about an hour, at a temperature of 37 C., gave a strong nitrite reaction, whereas the control that was not inoculated contained at this time no trace of nitrites.

Zeitschrift für Geburtshülfe und Gynäk., Stuttgart

July 8, 1922, **85**, No. 1

Biology of the Isthmus of the Uterus. L. Nürnberger.—p. 1.
Biology of Edema in the Pregnant. P. Mathes.—p. 26.
Action of Roentgen Rays on Ovarian Secretion. Tsukahara.—p. 36.
Mechanism and Effect of Obstruction of Tube. H. Strüver.—p. 58.
*Statistical Study of Sex of Child. K. Hellmuth.—p. 74.
Organotherapy in Ovarian Hemorrhage. Stickel and Zondek.—p. 83.
Statistics of Genital Cancers. Mattmüller.—p. 106.
The Origin of the Genital Flora. R. Salomon and E. Rath.—p. 141.
Importance of Greater Omentum for Fate of Extra-Uterine Fetus. E. Vogt.—p. 152.
Ligament Ventral Fixation for Retroflexion. H. Körner.—p. 164.

Sex of Children.—Hellmuth tabulates various data from 28,470 childbirths. His figures show that more boys than girls are born to the younger mothers, and after the age of 30 the proportion of boys increases progressively to the end of the reproductive period. This progressive excess of boys is particularly notable in primiparae.

Zeitschrift für Kinderheilkunde, Berlin

Aug. 20, 1922, **33**, No. 3-4

*Syphilitic Aortitis in the New-Born. F. Thoenes.—p. 113.
Raising in the Home of the Prematurely Born. Feilchenfeld.—p. 121.
*The Build of Children. C. Coerper.—p. 144.
*Static Albuminuria in Children. E. Nassau.—p. 158.
*Digestive Leukopenia in Children. Schippers and de Lange.—p. 169.
Cholesterin Balance in Infants and its Regulation. H. Beumer.—p. 184.
Reply. C. Beck and L. Wacker.—p. 195.
Permanently Large Liver After Catarrhal Jaundice. Ewstatiew.—p. 199.
Surface Tension of Milk. H. Behrendt.—p. 209.
Lipolytic Ferment in Milk. E. Schlossmann.—p. 218.
*Sudden Death in Tetany. T. Iwabuchi.—p. 223.

Syphilitic Aortitis in the New-Born.—Thoenes examined the aorta in ten syphilitic infant cadavers and in three free from syphilis. In three the aorta showed unmistakable signs of grave aortitis. It had evidently developed during fetal life and the fetus had died or the child had survived only a few days after birth.

The Build of Children.—Coerper discusses the necessity for classifying children according to their build, their habitus. Sigaud groups them as the digestive, the muscular, the respiratory and the cerebral types, and Coerper emphasizes that the standards of nutrition can be compared only within each group. He tabulates the findings and declares that this classification by types of build of premorbid schoolchildren has a number of practical advantages in welfare work.

Reaction of Urine in Static Albuminuria in Children.—Nassau reports that in fifteen children with static albuminuria the latter subsided almost invariably under treatment with an alkali. The sodium bicarbonate given seemed to neutralize some acid in the urine stagnating in the kidney in these cases, and when this factor of the albuminuria was done away with, the mechanical factor alone was not enough to induce the albuminuria.

Digestive Leukocytosis and Digestive Leukopenia in Children.—The results of this research on Widal's hemoclastic crisis liver test testify against any practical value for the test in children. See similar abstract on page 1730.

Sudden Death in Tetany.—Iwabuchi found evidence of inflammatory edema in the medulla oblongata of the infant 6 months old, which had succumbed in the last of several attacks of tetany.

Zeitschrift für klinische Medizin, Berlin

Sept. 15, 1922, **95**, No. 1-3

*Harmless Spontaneous Pneumothorax. B. Fischer.—p. 1.
*Purpura Cured by Shock Treatment. H. C. Gram.—p. 51.
New Picric Acid Compounds in Urine. P. Bergell.—p. 63.
Blood and Marrow in Remissions of Pernicious Anemia. Zadek.—p. 66.
Catalase Properties of Blood. E. Bach and W. Levinger.—p. 88.
Influencing Lipase Content of Blood. E. Bach.—p. 103.
Action of Protein Therapy on Blood. Adler and Blumberg.—p. 109.
Plethysmography in Latent Edema. Pfeffer and Rehberg.—p. 126.
Nonprotein Nitrogen in Blood in Heart Disease. O. Klein.—p. 137.
*Bulbar Paralysis with Heart Block. Eisner and Kronfeld.—p. 163.
Foods that Stimulate Purin Metabolism. E. Joël.—p. 170.
Azurophil Cells in Arneth Blood Count. Arneth and Stahl.—p. 201.
Experimental Butyric Acid Poisoning and Coma. Tschun-Nien.—p. 228.

Pneumothorax from Rupture of Apex.—Fischer relates that of the 77 cases of pneumothorax found in 9,548 cadavers, 10 were of traumatic origin, but 52 of the 67 others were due to tuberculosis. Rupture of an apical process induces a typical abrupt and alarming clinical picture at first, but with rapid and complete recovery. It was a necropsy surprise after death from intercurrent disease in 3 of these cases. The condition is not emphysema, but rupture of an air bubble formed in a healed apical process.

Cure of Hemorrhagic Purpura.—Gram's patient was a woman of 59, and the idiopathic Werlhof disease was of four months' standing, severe and rebellious. The bleeding time was an hour; coagulation time, sixteen minutes, but both returned to normal, and recovery was complete under protein therapy: four parenteral injections of 8, 2, 4 and 4 c.c. of milk in the course of two months.

Bulbar Paralysis with Heart Block.—The bulbar paralysis was of the apoplexy type, and the Adams-Stokes syndrome accompanied the complete heart block in the woman of 72. The paralysis gradually subsided, but the Adams-Stokes and the heart block persisted unmodified.

Zeitschrift für Urologie, Leipzig

1922, **16**, No. 9

Innervation of Kidney Calyx. H. Haebler.—p. 377.
Primary and Secondary Ureter Papillomas. S. Kraft.—p. 385.
*Solid Tumors in the Kidney. S. P. Fedoroff.—p. 393.
Case of Cystitis from Paraffin. Monis.—p. 407.
Hematuria After Appendicitis. Chrzelitzer.—p. 408.

Solid Tumors in the Kidney.—Fedoroff states that he performed a radical operation in forty-two of his fifty-three cases of solid kidney tumors, at Petrograd. Functional tests are of little use in diagnosis as the tumor is usually palpable by the time it affects the response to the tests. He found that the extraperitoneal lumbar-abdominal incision afforded ample access. He carries the incision from the edge of the erector trunci muscle at the twelfth rib, slanting downward, and then horizontally along the anterior abdominal wall on a line with the umbilicus or a little above, according to the location of the hilus, stopping at the outer margin of the rectus muscle. He shells out the kidney from its fibrous capsule, removing the latter afterward, if necessary. The kidney is pulled downward and outward, the hand pressing against its anterior surface while an assistant draws inward the anterior lip of the wound with a broad kidney hook introduced between the kidney and the fibrous capsule. This leaves space for a semicircular incision through the fibrous capsule close to the hilus. Through this incision the hilus, the pelvis and the ureter are gently detached with the finger. The kidney is then lifted up and pushed inward and upward. The assistant applies the retractor to the opposite side, and thus draws the lower lip of the lumbar incision outward. This allows access to the posterior surface of the hilus, and a semicircular incision here completes the circle. Through this the hilus is detached completely and the kidney is thus freed and movable. The chief advantage of this method is that the vessels and the ureter can be ligated separately. The mortality in his forty-two cases was 20.6 per cent. but has been only 7 per cent. since 1908. Four have been under observation for nearly three and four years without recurrence, one for six and two for seven and ten. In one case the hypernephroma recurred three years later. The first symptom was bleeding from the ureter on the nephrectomized side. This was not explained until two years later when a small hypernephroma was removed from the upper ureter, and there was no further hematuria. He compares his experiences with others'; the fatalities were nearly all in cases with extensive adhesions.

Kitasato Archives of Experimental Medicine, Tokyo

August, 1922, **5**, No. 1

*Nature of Precipitate in Serodiagnosis. K. Taoka.—p. 1.
Elements in Blood Necessary for Growth of Influenza Bacillus. M. Terada.—p. 34.
*The Leukopenia After Inoculation with Influenza. S. Yabe.—p. 67.
*Quantitative Test for Epinephrin. K. Okamoto.—p. 79.

Nature of Precipitate in Serodiagnosis of Syphilis.—Taoka refers in particular to the Sachs-Georgi serum reaction to cholesterinized heart extract. He found that the flakes in a positive reaction can be separated into two substances, one soluable in ether and the other not soluble. The insoluble substance gives a positive Wassermann reaction and also a positive Sachs-Georgi reaction when mixed with an antigen. No albumin reaction was obtained with it. The soluble substance consists of potent antigen.

Leukopenia After Inoculation with Influenza.—Yabe has succeeded in inducing in animals by injection of influenza bacilli the characteristic leukopenia which seems to occur invariably when man contracts influenza. He found further that convalescents' serum annuls this leukopenia-producing faculty of the influenza bacillus. He prepared vaccines on these bases, and reports the findings in about half a million persons inoculated with them during the second epidemic of influenza. The characteristic leukopenia followed the vaccine inoculation the same as with natural inoculation, regardless of whether or not the subject had had influenza. But within the three months after the vaccine therapy the leukopenia was much less, showing a tendency to acquired immunity, the same as was observed during the first three months after an attack of influenza. In both conditions, however, this tendency to immunity had disappeared by the end of the year.

Test for Epinephrin in the Blood.—Okamoto has modified the excellent method devised by Suto and Inouye for quantitative estimation with mercuric chlorid of the epinephrin in the blood. Nearly 100 per cent. of the epinephrin could be recovered from rabbit and horse blood with this improved method, using only 1 c.c. of blood or more.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Aug. 5, 1922, **2**, No. 6

*Arterial Degeneration. Sir F. W. Andrewes.—p. 528.
*Cholesterin Content of the Blood in Disease. J. W. Koning.—p. 540.
Mendel's Laws from Medical Standpoint. G. P. Frets.—p. 546.
Staphylococcus Sepsis in Acute Articular Rheumatism. Knüppe.—p. 557.
Boerhaave's "Case Book." J. E. Kroon.—p. 559.
Supplement: Report of Netherlands Council on Pharmacy and Chemistry. I. General. II. Digitalis and Its Use.

Arterial Degeneration.—Andrewes explains that the arteries are subject to at least four types of arteriosclerosis: the senile, the diffuse sclerosis of high blood pressure, nodular sclerosis, and syphilitic sclerosis. Arterial changes of somewhat similar kind, though greatly less in degree, may result from infections other than syphilis. He was unable to cultivate any bacteria from the aorta tissue in thirteen cases free from infection, but the findings were frequently positive in thirty-six cases of infectious disease, and the cultures were of the organism responsible for the primary infection. The article is in English.

Cholesterin Content of the Blood in Various Diseases.—Koning tabulates the data from 20 patients with various affections; 14 with symptoms suggesting gallstones; 8 with kidney diease; 5 with migraine, and 10 obese patients. The cholesterin content of the blood was within normal range in all the cholelithiasis patients, and was below normal in the nephritis cases. On the other hand, it was much above normal in all those with migraine and with obesity. These findings are in sharp contrast to those who have reported high cholesterin content as the rule with gallstones. It is possible, he suggests, that the coincidence of obesity or migraine with the gallstones may have been overlooked, and he urges research in this line by those with wider opportunities. In his 10 patients weighing from 75 to 95 kg., the cholesterin was 3 up to 5.5 per thousand in all but 4, and in these it ranged from 2.73 to 2.95. The ages were between 32 and 56. Only 3 were women.

Aug. 19, 1922, **2**, No. 8

*Action of Turpentine Abscess in Sepsis. I. Snapper.—p. 776.
Biology of the Skin and Immunity. P. H. van der Hoog.—p. 785.
Jaundice in Typhoid; Two Cases. A. S. van Heukelom.—p. 801.
*Scurvy in Adult at Utrecht. D. M. Levy.—p. 810.

Fixation Abscess in Sepsis.—Snapper relates that in the six cases of severe sepsis described, a turn for the better followed immediately after incision of the abscess that had developed promptly after subcutaneous injection of 1 or 2 c.c. of turpentine. In two of the cases no abscess developed until about a month after the injection. In refractory cases in future, he intends to repeat the injection a few days later.

Scurvy at Utrecht.—A retired army officer complained of pain and stiffness in walking and the calves were tender. These symptoms promptly subsided on a change from his exclusively cereal diet.

Aug. 26, 1922, **2**, No. 9

*Digestion Leukopenia. J. C. Schippers and C. de Lange.—p. 894.
Cheyne-Stokes Respiration. F. F. Hazelhoff.—p. 910.

*Essential Hematuria. C. P. van Nes.—p. 919.
Fibroma in Stomach Wall plus Ulcer. J. J. Halbertsma.—p. 927.
Case of Acute Aleukemic Lymphadenosis. W. I. Bais.—p. 930.

Digestion Leukocytosis and Digestion Leukopenia.—Schippers and de Lange have been impressed with the number of infants dying from toxicosis in whom degeneration of the liver seemed to be the only pathologic finding. They consequently have been applying functional tests of the liver to young children, and tabulate the findings in regard to digestion leukocytosis and leukopenia in healthy infants and young children. They found such a wide normal range, from 5,400 to 16,000 in the leukocyte count, and such extreme fluctuations up and down during digestion, that no diagnostic import can be ascribed to leukopenia after ingestion of 100 or 200 gm. of milk, fasting. This is Widal's hemoclastic test of insufficiency of the liver, but it is thus shown to be not applicable to young children. Transient leukopenia seems to be the physiologic reaction in infants to intake of food.

Essential Hematuria.—Van Nes reports a case of severe acute hemorrhagic focal glomerular nephritis in a man of 78, previously healthy. The blood was the only pathologic element found in the urine, and the other kidney seemed sound. On suspicion of cancer, the bleeding kidney was removed four weeks after the first appearance of the hematuria, and the patient has been in good condition since. In a second case, in a man of 42, a mechanic, who for ten years had had occasional hematuria from the left kidney, nephrectomy put an end to all disturbances. The changes in the kidney affected the blood vessels; some were so dilated that they suggested varices or angiomas. Nephrotomy may suffice when all other causes for the hematuria can be excluded, but otherwise nephrectomy is indicated with serious losses of blood.

Acta Chirurgica Scandinavica, Stockholm

Sept. 18, 1922, **55**, No. 2

*Treatment of Gastric and Duodenal Ulcer. H. N. A. Nielsen.—p. 105.
*Simple Ulcer of the Colon. S. Lindqvist.—p. 142.
*Blood Transfusion in Cholemia. G. Pallin.—p. 149.
Transactions of Scandinavian Surgical Congress, 1921. W. Gejrot.—p. 156.
*Dissecting Osteochondritis in the Knee. J. Hellström.—p. 190.

Surgical Versus Medical Treatment of Gastric and Duodenal Ulcer.—Nielsen writes from Faber's service at Copenhagen, and relates that in the 10 cases of fatal hemorrhage from these ulcers there had been no hemorrhage before, and the symptoms from the ulcer were so vague and recent that the diagnosis of ulcer had not been even fairly certain. In a total of 55 cases of fatal ulcer hemorrhage at Copenhagen, 25 per cent. had shown no symptoms previously or, at most, some oppression in the stomach for not more than a month, and 50 per cent. had had symptoms for less than a year. The majority of the fatal hemorrhage cases were in the older patients, and the source of the bleeding was often multiple. Two patients have died since from gastric hemorrhage among the 140 ulcer patients treated medically, and cancer developed in 3; 11 others have died from other causes, but none from perforation. The patients have been under observation for from two and a half to nineteen years. In the 88 cases of perforation of an ulcer, the lesion was of recent development and the diagnosis uncertain in the overwhelming majority. The article is in English.

Simple Ulcer of the Colon.—Lindqvist adds 2 new cases to the 35 on record of simple ulcer of the colon. Perforation occurred in 26, and 6 recovered, including 5 saved by a laparotomy. Necropsy revealed hemorrhagic necrosis in both his cases. (In English.)

Blood Transfusion in Cholemia.—Pallin was impressed by the fact that in fifteen out of twenty-five cases of death after a gallstone operation, the fatality was due to postoperative cholemic hemorrhage. He reports a case in which transfusion of blood seemed to aid in arresting the hemorrhage. The coagulating time of the blood had been found normal before the operation, and hence prophylactic transfusion had not seemed necessary. (In English).

Dissecting Osteochrondritis of the Knee. — Hellström describes with the roentgenograms five cases, bilateral in some. The prognosis is bad as a rule without operative treatment, but this cured completely in the two cases recently reexamined. Trauma is an important factor. If there is arthritis deformans, this is usually favorably influenced by the operation, but Neumann and Suter have described a case in which the arthritis deformans seemed to develop after the operation. The changes may possibly have been overlooked.

Finska Läkaresällskapets Handlingar, Helsingfors

July-August, 1922, **64**, No. 7-8

*Surgical Treatment of Chronic Colitis. A. Krogius.—p. 333.
*Essential Hypertonia. W. Kerppola.—p. 352.
Roentgen-Ray Diagnosis of Gastric Ulcer. G. Jansson.—p. 364.
Case of Tuberculosis in Horse-Shoe Kidney. Baltscheffsky.—p. 377.

Surgical Treatment of Ulcerative Colitis.—Krogius declares that entero-anastomosis to exclude the chronic ulcerative lesions is the only rational and certain means to cure severe colitis. Local medication through a colostomy is inadequate and wastes time. In a convincing case described, the woman of 46 had had symptoms of ulcerative colitis for eight years. Conditions improved temporarily under local medication, but the symptoms always returned sooner or later, and each time worse. He finally implanted the ileum in the lowest portion of the colon, thus excluding nearly the whole of the large bowel, and the clinical cure was prompt and permanent. He did not fear the backing up of feces in the bowel after this unilateral exclusion, as the old chronic disease in the descending colon had reduced its permeability. The metabolic findings in this case showed satisfactory utilization of the food. The loss of calories was only from 1.5 to 4 per cent. greater than in the controls.

Essential Hypertonia.—Kerppola tabulates the differential blood count and other data from thirty-one persons with essential hypertonia and thirty-one normal controls.

Norsk Magazin for Lægevidenskaben, Christiania

September, 1922, **83**, No. 9

*Passive Transmission of Anaphylaxis. A. de Besche.—p. 657.
*Blocking the Nerve Plexus. E. Platou.—p. 667.
*Hyperplasia of the Mamma. H. Nitter.—p. 673.
*Hibbs' Operation on the Spine. S. Widerøe.—p. 677.
*Pregnancy Glycosuria and Renal Diabetes. K. Motzfeldt.—p. 689.
*The Use of the Kielland Forceps. C. Kielland (Christiania). Supplement.—pp. 1-32.

Passive Transmission of Anaphylaxis.—De Besche reports that the serum from persons with horse asthma and other forms of anaphylaxis transmitted the same anaphylaxis to the same foreign protein when the serum was injected into guinea-pigs, and also in three of the five similar tests with the serum injected into healthy persons. Only four of the first group of ten persons tested developed the anaphylaxis in the guinea-pigs, the results being negative in the others.

Blocking the Plexus.—Platou has been applying Kulenkampff's method for blocking the nerves from the brachial plexus for operations on the arm. The anesthesia was perfect in twenty-five of his twenty-six cases and no untoward by-effects were observed or seemed to be liable. He thinks the procedure can be regarded as free from danger.

Hyperplasia of the Mamma.—Nitter felt justified in amputating both breasts in the girl of 21. They had been enlarging for eighteen months and weighed, when removed, 6 kg. and 4.7 kg.

Hibbs' Operation on the Spine.—Widerøe has applied Hibbs' operation in seven cases of tuberculous spondylitis and also in a painful traumatic spinal affection, with seemingly good results in all.

Renal Diabetes and Pregnancy Glycosuria.—Motzfeldt thinks one of the three cases he reports is unique, as the man of 38 who had presented a typical renal diabetes for years finally threw it off completely. In another case the diabetes developed after a trauma; and it seems to be halfway between the purely renal and the ordinary type of diabetes. His third patient is a woman of 27 who developed renal diabetes during each of her two pregnancies but was normal otherwise.

The Kielland Forceps.—Kielland gives a number of illustrations to demonstrate the use of his forceps. It was described in THE JOURNAL, July 9, 1921, p. 142.